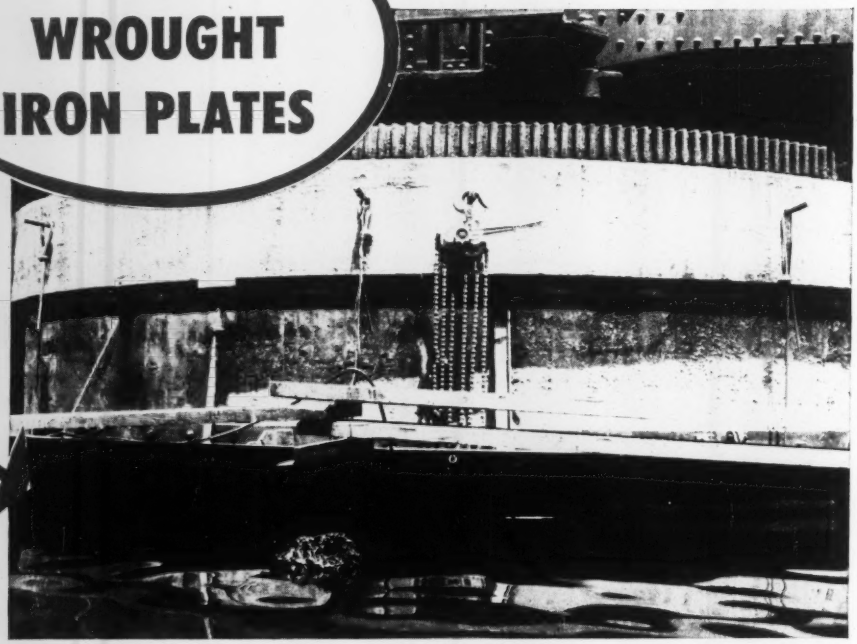
ENGINEERING NEWS-RECORD

A McGRAW-HILL PUBLICATION

BYERS WROUGHT IRON PLATES



...give this B&O Bridge Pier a new FACE...a new FUTURE

The Baltimore and Ohio Railroad was faced with an interesting and complicated repair problem.

A 26-feet-in-diameter concrete pier, supporting the Bear Creek Swing Bridge in Baltimore, was disintegrating. Company engineers came up with the answer that not only solved the immediate repair problem, but also protected the pier for the future.

The old pier was encircled with 3/16-inch Byers Wrought Iron plate, seven feet high, and extending about a foot above the water line. This mold was sealed and made watertight with 3/8-inch Byers Wrought Iron angles. The disintegrated material was removed and the 16-inch space allowance between the plate and pier was filled with new concrete. For protection against future deterioration, the corrosion-resistant mold of Byers Wrought Iron plate was left in place. The Masonry Resurfacing and Construction Co., Baltimore, was the contracting firm. Plate fabrication was handled in the B & O's shop in Martinsburg, W. Va.

The value of genuine wrought iron in this service comes from its proved ability to withstand the submerged and alternating wet and dry corrosion conditions for extended periods.

If you have any bridge or pier construction or repair in mind, you'll find some helpful information in our bulletin, WROUGHT IRON FOR BRIDGE CONSTRUCTION. Write for your copy.

A. M. Byers Company, Pittsburgh, Pa. Established 1864. Boston, New York, Philadelphia, Washington, Atlanta, Chicago, St. Louis, Houston, San Francisco. Export Division: New York, N.Y.

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CORROSION COSTS YOU MORE THAN WROUGHT IRON

WROUGHT IRON

TUBULAR AND HOT ROLLED PRODUCTS

ELECTRIC FURNACE QUALITY ALLOY AND STAINLESS STEEL PRODUCTS

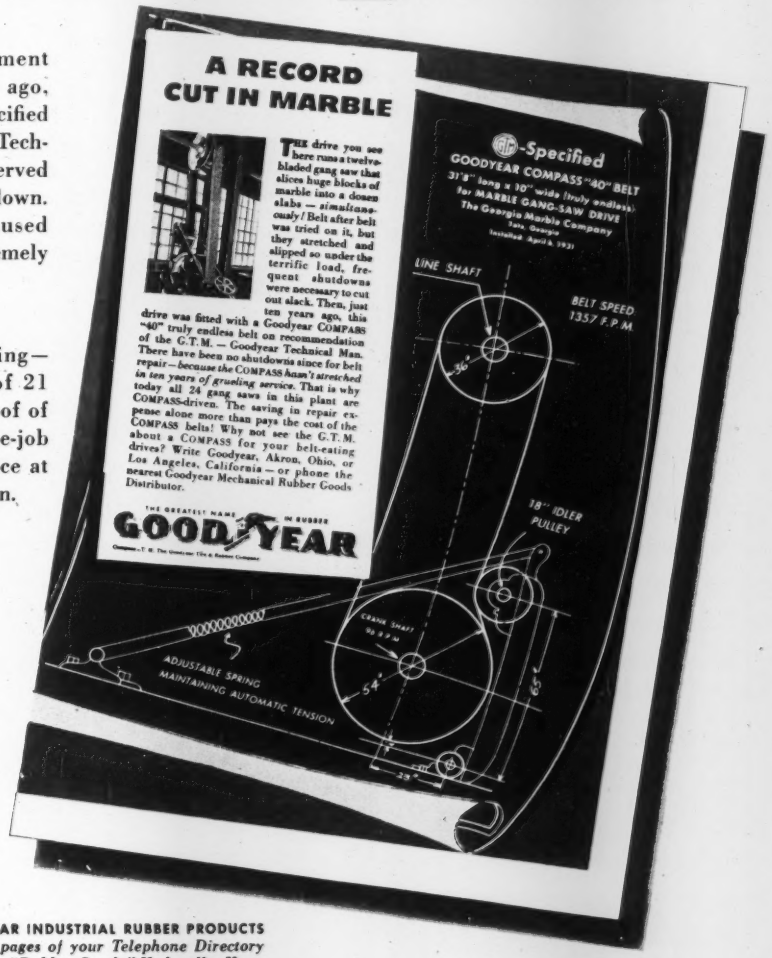
Looking For Long Belt Life?

THIS STORY SHOULD SHOW YOU THE ANSWER!

WHEN this advertisement appeared 11 years ago, the COMPASS 40 Belt specified by the G.T.M.—Goodyear Technical Man—had already served 10 years without a shut-down. Earlier belts had all caused trouble due to the extremely heavy drive.

TODAY

—this belt is still running—for a total life so far of 21 years and 7 months—proof of Goodyear's design-for-the-job that means longest service at lowest cost in the long run.


A RECORD CUT IN MARBLE
THE drive you see here runs a twelve-bladed gang saw that slices huge blocks of marble into a dozen slabs — simultaneously! Belt after belt was tried on it, but they stretched and slipped so under the terrific load, frequent shutdowns were necessary to cut out slack. Then, just ten years ago, this drive was fitted with a Goodyear COMPASS "40" truly endless belt on recommendation of the G.T.M. — Goodyear Technical Man. There have been no shutdowns since for belt repair — because the COMPASS hasn't stretched in ten years of grueling service. That is why today all 24 gang saws in this plant are COMPASS-driven. The saving in repair expense alone more than pays the cost of the COMPASS belts! Why not see the G.T.M. about a COMPASS for your belt-eating drives? Write Goodyear, Akron, Ohio, or Los Angeles, California — or phone the nearest Goodyear Mechanical Rubber Goods Distributor.
THE GREATEST NAME IN RUBBER
GOODYEAR
GTM-Specified
GOODYEAR COMPASS "40" BELT
31'8" long x 10" wide (truly endless)
for MARBLE GANG-SAW DRIVE
The Georgia Marble Company
Tate, Georgia
Installed April 6, 1931
LINE SHAFT
BELT SPEED 1357 F.P.M.
36"
18" IDLER PULLEY
CRANK SHAFT 90 R.P.M.
54"
65"
23"
ADJUSTABLE SPRING MAINTAINING AUTOMATIC TENSION

LOOK FOR YOUR GOODYEAR INDUSTRIAL RUBBER PRODUCTS DISTRIBUTOR *in the yellow pages of your Telephone Directory under "Rubber Products" or "Rubber Goods." He handles Hose, Flat Belts, V-Belts, Molded Goods, Packing, Tank Lining, Rubber-Covered Rolls built to the world's highest standard of quality.*

GOODYEAR

THE GREATEST NAME IN RUBBER

We think you'll like "THE GREATEST STORY EVER TOLD"— Every Sunday — ABC Network

Compass—T. M. The Goodyear Tire & Rubber Company, Akron, Ohio

ENGINEERING NEWS-RECORD

ABP Member ABC

Volume 149 December 18, 1952 No. 25

WALDO G. BOWMAN
Editor

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ROBERT F. BOGER
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Member ABC and ABP

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Monsanto PENTA goes to school!

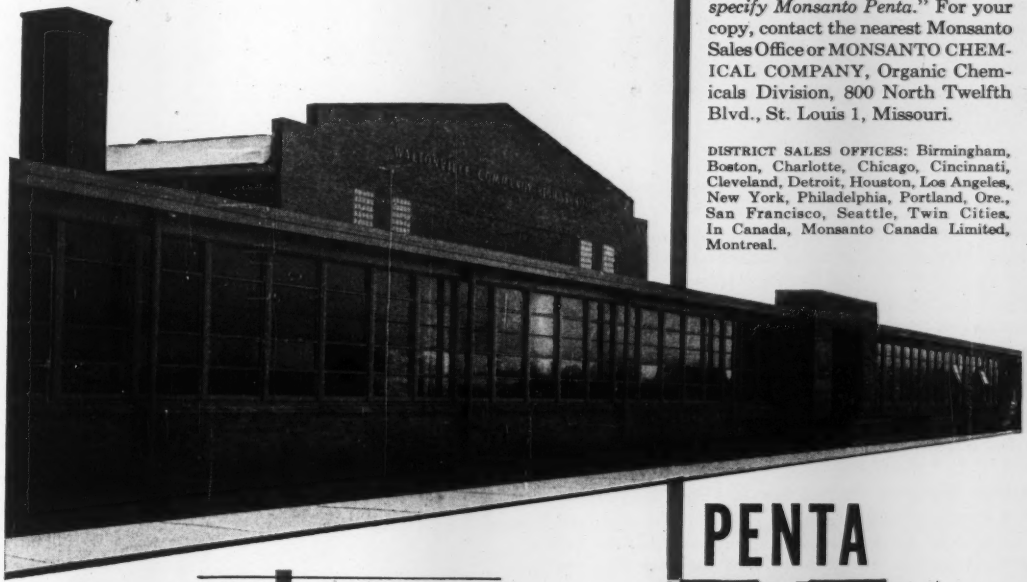
When officials made plans for Waltonville Community High School, Waltonville, Illinois, they specified longer life for screeds and subflooring. They specified penta preservative.

All 1 x 8 yellow pine subflooring and 2 x 2 screeds are protected with Monsanto Penta. The lumber . . . a total of 9,452 board feet . . . was treated by the pressure process to retain six pounds of penta-in-oil solution per cubic foot.

Monsanto Penta (pentachlorophenol) is a stable chemical made for wood preservation. It repels termites and other wood-boring insects and prevents decay. Penta does not leach. Rain and ground water cannot wash it away. It can be applied so that wood becomes moisture repellent and so surfaces are clean and paintable.

If you specify wood for any structural purposes, you will be interested in Monsanto's new booklet, "*For maximum wood protection, specify Monsanto Penta.*" For your copy, contact the nearest Monsanto Sales Office or MONSANTO CHEMICAL COMPANY, Organic Chemicals Division, 800 North Twelfth Blvd., St. Louis 1, Missouri.

DISTRICT SALES OFFICES: Birmingham, Boston, Charlotte, Chicago, Cincinnati, Cleveland, Detroit, Houston, Los Angeles, New York, Philadelphia, Portland, Ore., San Francisco, Seattle, Twin Cities. In Canada, Monsanto Canada Limited, Montreal.



Architect:	D. Clarence Wilson, A. I. A., Mt. Vernon, Illinois
Contractor:	Hunt Construction Company, Mt. Vernon, Illinois
Wood Supplier:	Allen Lumber Company, Sesser, Illinois
Wood Treaters:	Associated Wood Preservers, Inc., St. Louis, Missouri

PENTA

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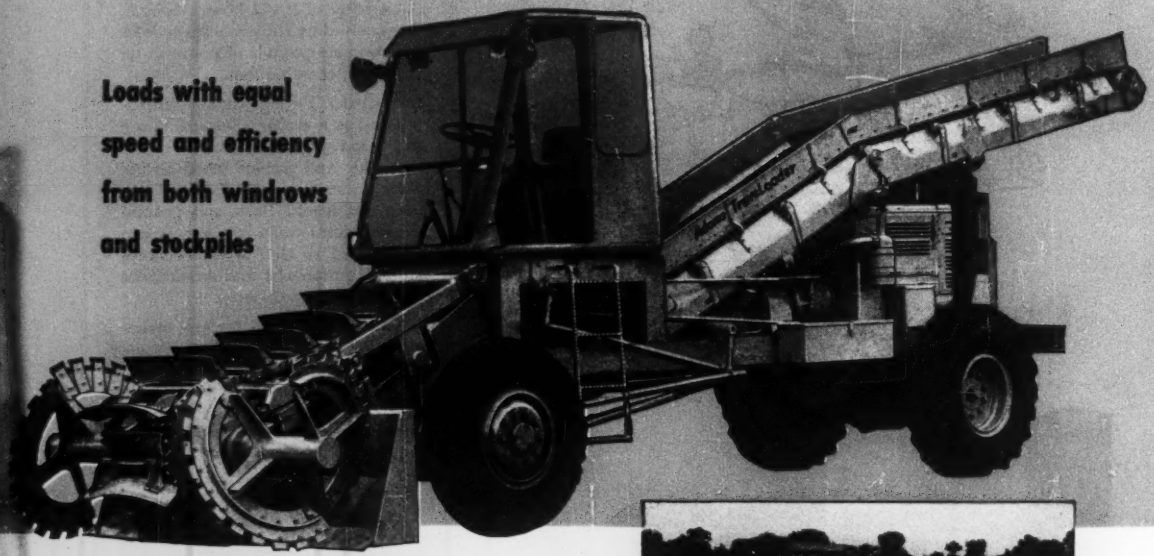
CHEMICALS – PLASTICS

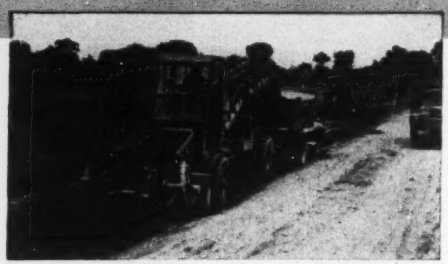
Serving Industry... Which Serves Mankind

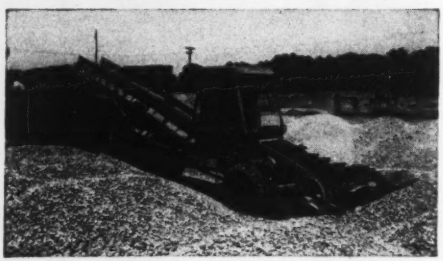
THE NEW ALL-PURPOSE

Adams TraveLoader

Loads with equal speed and efficiency from both windrows and stockpiles







● Fast loading—*at low cost!* That's what you want and get in the great new *All-Purpose* Adams TraveLoader. Loading with equal ease from either windrows or stockpiles, as pictured at right, the TraveLoader offers many important operating and design features:

—**High-Speed, Full-Floating Feeder** . . . delivers a fast, continuous flow of material to trucks.

—**Adjustable Conveyor** . . . raises and lowers to accommodate trucks of all sizes—provides better load distribution in trucks with less dust.

—**Centrally-Located Cab** . . . situated high out of the dust area—affords operator full vision in all directions—working or traveling.

—**A Wide Range of Working Speeds**—from 0.23 mph.—and a high transport speed of 25 mph.

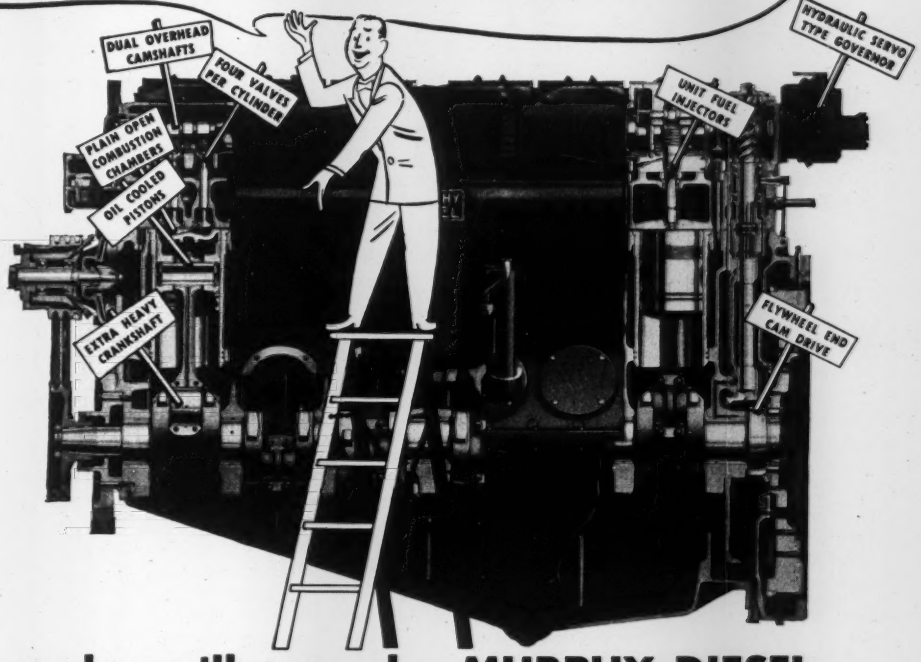
Let your local Adams dealer demonstrate how the new TraveLoader will speed work and cut costs--*for you!*

J. D. ADAMS MANUFACTURING CO. • INDIANAPOLIS, IND.

ADAMS

Motor Graders TraveLoaders Pull-Type Graders

Look inside the engine...



and you'll see why MURPHY DIESEL gives you more power, greater economy and longer engine life...

MURPHY DIESEL

Heavy duty power

for construction

Murphy Diesel Engines and Power Units for construction, 90 to 226 H.P., 1200 and 1400 RPM. Generator Sets, 60 to 140 K.W.

FOR the most part, engines look pretty much alike from the outside, but to really judge an engine you have to look inside. The Murphy Diesel isn't afraid of comparison. It offers a combination of proved design advantages available in no other engine. Check these features for yourself and ask Murphy Diesel owners—they'll tell you what these features mean in terms of good heavy-duty power, minimum fuel consumption and long engine life.

Additional information is given in the booklet, "*10 Questions to Ask a Diesel Engine Salesman*". Ask your Murphy Diesel Dealer for a copy or write direct.

MURPHY DIESEL COMPANY

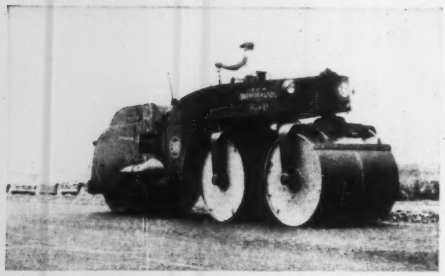
5311 W. Burnham Street Milwaukee 14, Wis.

237 *Sales, parts and service in strategic locations throughout the nation*

Announcement

Torque Converter Drive in Road Rollers Offered by Buffalo-Springfield—another "First" Pioneered by the Leader in Roller Design

With the new Buffalo-Springfield Torque Converter Drive, operators can roll at *any* speed from 1 to 5 mph without shifting gears. Controlled by a unique governor set up, the torque converter will deliver whatever power is required (up to full engine capacity). Power changes instantaneously to suit varying requirements. This means that variations in materials and grade are compensated for automatically! Slipping the roll is virtually eliminated. Courses of all kinds are compacted more smoothly, easily and efficiently than ever before! The new transmission is offered as *optional equipment* on its 8-16 ton 2-axle tandems, 3-axle tandems and 3-wheel rollers.



This is one of the first 3-axle tandems with Torque Converter Drive at work on the New Jersey Turnpike—built by Buffalo-Springfield for Geo. M. Brewster & Son of Bogota, New Jersey.

Buffalo-Springfield Torque Converter Drive has been *proven conclusively* in the field. For two construction seasons, a fleet of 2 and 3-axle tandems has operated on a wide variety of work including all courses of the New Jersey Turnpike—from special classified sub-grade material and loose stone base to bituminous concrete wearing surfaces.

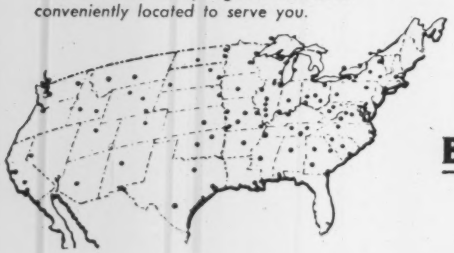
With the introduction of the new drive you now have your choice of two great transmissions to meet every rolling requirement. Exclusive Torque Converter Drive to give you an *infinite* number of speeds, *all* at full power. And Buffalo-Springfield's exclusive 4-speed transmission which was introduced in 1945 to provide *more* speeds at full engine power than either 2 or 3-speed transmissions.

Naturally, rollers with Torque Converter Drive are built with the same characteristics of long life and low maintenance that have made Buffalo-Springfield famous for more than 60 years.

See your Buffalo-Springfield Distributor or write the factory for complete information on Torque Converter Drive.

NOTE: 4-speed transmission standard equipment on all rollers except KT-7 Torque Converter Drive is available at extra cost on models listed above.

There's a Buffalo-Springfield Distributor conveniently located to serve you.



BUFFALO-SPRINGFIELD
ROLLER COMPANY

BUFFALO SPRINGFIELD
THE STANDARD OF COMPARISON
SPRINGFIELD, OHIO

THE LEADER IN ROAD ROLLER DESIGN AND MANUFACTURE

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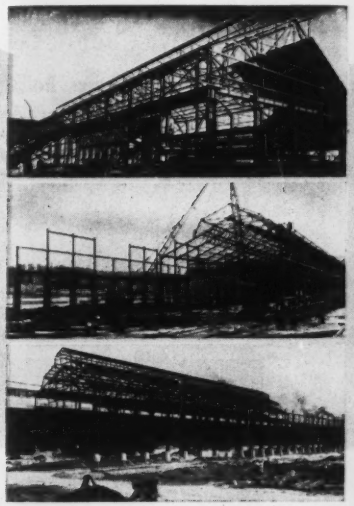
Steel Builders for the Steel Industry

ENGINEERS,
FABRICATORS, ERECTORS
OF
RIVETED AND WELDED
STRUCTURAL STEEL



Fort Pitt BRIDGE WORKS

Member American Institute of Steel Construction

"Steel Permits Streamlining Construction with Safety, Endurance and Economy"

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In-Built Trueness...

basis for longer life and lower cost!

Unwavering right-line rotation . . . that's the immediate result of in-built trueness in Rollway roller bearings. There's no skew, no side-shock, no roller-end-drag. Internal forces are balanced by matchless precision in related parts. Bores are precisely cylindrical. Separator surfaces are rigorously parallel. Roller ends are truly square on every diameter. And bearing surfaces match both the separator slots and the roller races.

Over the long run, life expectancy is greatly extended. Cost per unit of time falls sharply.

RIGHT-ANGLE
ROLLER ENDS, precisely square to avoid end-rub, oscillation and side-shock.
RIGHT-ANGLE
BEARING SURFACES with parallelism that results in unwavering right-line rolling.
RIGHT-ANGLE
SEPARATOR SLOTS accurately machined to prevent roller skew, slide and uneven wear.

Rollways Roll Right Because They're Made Right

Let our engineers help you to select the Rollway bearing that is exactly right for your application. Our years of specialized bearing experience and complete engineering and metallurgical service are always at your command. No cost. No obligation.

Nationwide Replacement Service: Rollway bearings are available for replacement through authorized bearing distributors in principal cities. To locate, consult classified 'phone directories under BEARINGS. Rollway Bearing Co., Inc., Syracuse 4, N.Y.

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PHILADELPHIA	CLEVELAND
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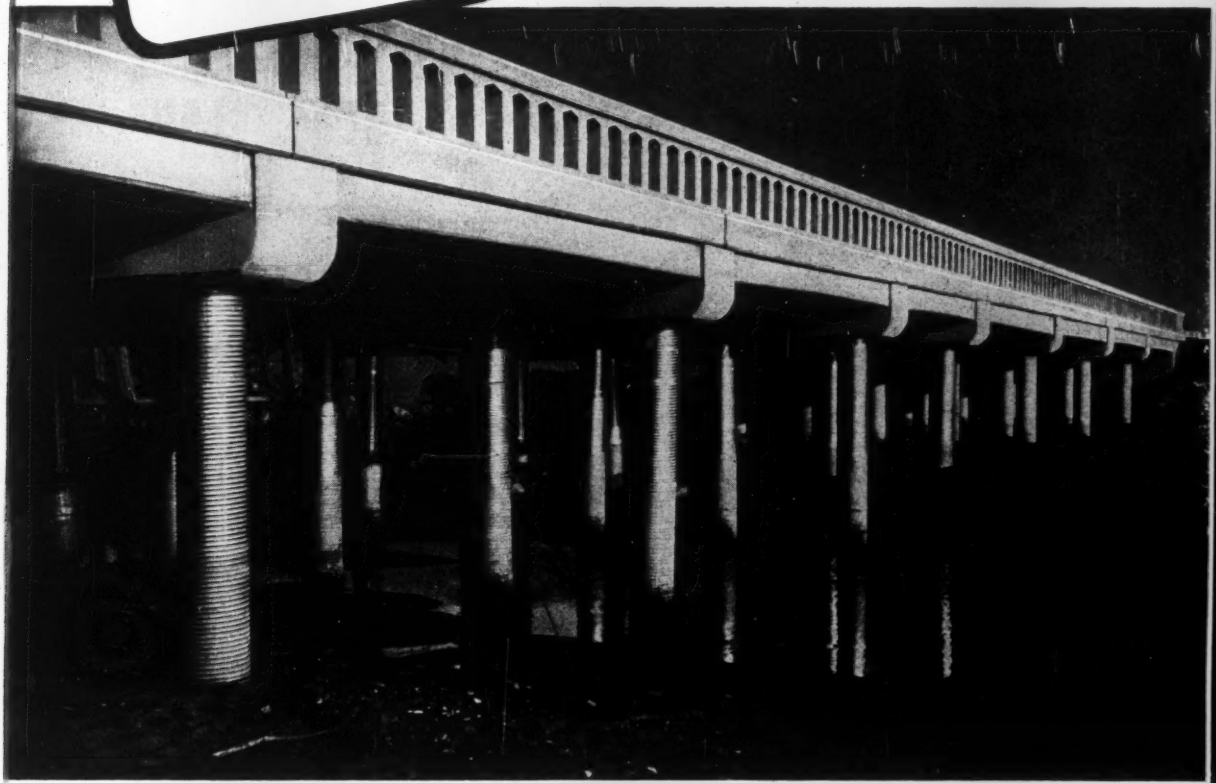
ROLLWAY BEARINGS

Complete Line of Radial and Thrust Cylindrical Roller Bearings

completed ...another bridge on RAYMOND piles



Constructed for State of California Department of Public Works, Division of Highways.

spanning the South Channel Sweetwater River between National City and Chula Vista, California is this 332-foot long highway bridge supported by Raymond piles. It has a 28-foot wide roadway and is of reinforced concrete construction with concrete caps resting directly on the Raymond piles—another example of the important role Raymond is playing in the constant development of the highways of America.

THE SCOPE OF RAYMOND'S ACTIVITIES . . .

Foundation Construction . . . Harbor and Waterfront Improvements . . . Soil Investigations . . . In-Place Pipe Lining . . . Specialized Construction

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CONCRETE PILE CO.
140 Cedar Street • New York 6, N. Y.

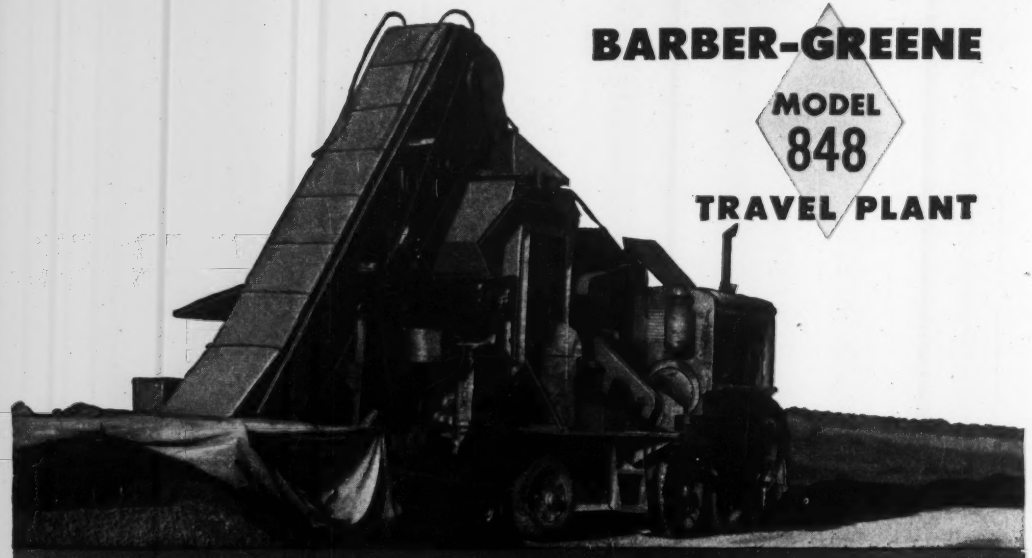
Branch Offices in the Principal Cities of United States and Central and South America.

Here's the equation for low-cost roads

BARBER-GREENE

MODEL 848

TRAVEL PLANT



HIGHER MIXING CAPACITY + GREATER FLEXIBILITY + IMPROVED MIX QUALITY = B-G TRAVEL PLANT

Increased traffic and higher loads have created a strong demand upon highway departments for better secondary roads. The Barber-Greene Travel Plant is a proved way to put a high quality surface on these roads at lowest cost.

Utilizing the basic, well proved B-G 848 Mixer and Paving Loader—the Travel Plant operation is simple and easily controlled for consistently uniform quality.

Working in one continuous, interlocked operation, the loader feeds the windrowed aggregate to the mixer where aggregate and bitumen are accurately proportioned . . . thoroughly mixed and discharged in a windrow at rear of machine.

Accurate measurement saves on materials. Close control of mixing, plus twin pug-mill pressure mixing, allows use of heavier cutbacks . . . making possible savings of hundreds of dollars per mile.

Barber-Greene BG

Aurora, Illinois, U. S. A.

READER COMMENT

Fly-ash picture grows

Sir: Relative to the article "Highway department tests fly-ash in pavement mixes," by W. L. Chilcote, in ENGINEERING NEWS-RECORD, Oct. 23, we believe that your readers would be interested to learn of rather extensive research and testing, and the growing use of fly-ash in concrete and asphalt mixes in areas of the country other than that mentioned in the article.

In 1939 the Sanitary District of Chicago paved a considerable area of driveways around one of its treatment plants using fly-ash concrete. In 1948 the Wisconsin Highway Commission specified fly-ash in three miles of concrete paving. Kansas used fly-ash in a five-mile experimental project near McPherson in 1949, and Nebraska utilized fly-ash in concrete paving in two six-mile projects in 1950 and 1951—all cases produced satisfactory results.

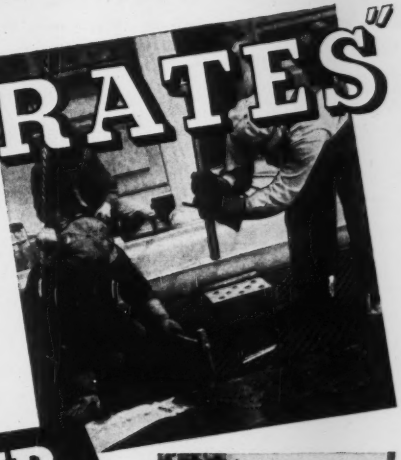
Many tests have been made to show that proper air-entrainment is needed to obtain high resistance to freezing and thawing both with and without fly-ash in the mix. With fly-ash more air-entraining agent is generally required than without it, but numerous tests have shown that when proper air content is maintained, as was the case for example in the Nebraska projects, the resistance to frost action of concrete containing fly-ash is also excellent.

Fly-ashes vary considerably, and strength data for fly-ash concrete should include the properties or source of the fly-ash. In a study of 15 different fly-ashes from throughout the eastern part of the United States, the range in 28-day compressive strength with 20% of the cement substituted by fly-ash, was from 5,190 to 3,770 psi. Some fly-ash mixes surpass normal mixes even before 28 days.

In most bituminous paving plants the hot dry mixing does not take place in a mixer vented to the drier stack. The fly-ash or any other fine filler is not put through the drier but is already dry and is added just prior to the addition of the bitumen. Approximately 70,000 tons of fly-ash annually would not be used in Detroit, Mich., alone, as it now is, if its use presented a dust nuisance or loss of quality due to loss of significant amounts up the stack.

CRAIG J. CAIN
President
Chicago Fly-Ash Co.

5 "GRATES"
for hundreds of construction applications



with KLEMP Metal Gratings
to

- *Protect against floor wastes*
- *Reinforce all concrete surfaces*
- *Insure fireproof, non-slip footing for men and traffic*
- *Insure efficiency with safety*
- *Insure protection, plus comfort through complete ventilation*

The Klemp Metal Grating Corporation has been serving the needs of contractors, civil engineers and public works officials for almost half a century. During this time, Klemp has produced and patented several specialized gratings, such as Hexteel and Floorsteel.

Klemp's engineers have exclusively specialized in the fabrication of gratings, such as Hexteel Surface Armor and Floorsteel Flexible Floor Armor for reinforcement of all surfaces where concrete or mastic are applied. In addition, they have developed a bridge decking which is the most up-to-date flooring for modern bridges . . . prefabricated to exact specifications.

Klemp's diamond riveted and welded gratings are ideal for foot and plant material traffic wherever rugged strength is needed in structural footwalks, stair treads and open steel flooring.

We solicit the opportunity to let Klemp's engineers help solve your most difficult grating problems. Send in your blueprints for quotations today. All types of Klemp Gratings are available for immediate shipment.

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METAL GRATING
CORPORATION

Executive Offices: 1365 N. Branch St., Chicago 22, Ill.
Plant: 6601 S. Melvin Ave., Chicago 38, Ill.

Ever wonder why you *never* see a scowling, fagged operator on the Baker, A-C team? Here's why:

They just plain love that "doze-in-your-armchair" ease of control, that positive hold without throttle jockeying; that fraction-of-an-inch accuracy . . . that quick, direct lift; that positive down-pressure which puts almost all the tractor weight on the cutting edge; *and* the "roll-action" of the blade which leaves more tractor power for push. Because "Easy DOZE It!"

That's why you see the Baker, A-C team more and more wherever dirt has to be moved fast and efficiently. When operators *prefer* it, you can count on it being the best money-maker.

Specify Baker Bulldozers, Gradebuilders or Root Rippers for your new A-C Tractors . . . Baker makes engine-mounted hydraulic control models and cable-control models for the entire line of Allis-Chalmers crawlers. See your Baker, A-C Dealer. THE BAKER MANUFACTURING COMPANY, Springfield, Illinois.

P.S.: Baker is the PIONEER and the SPECIALIST in bulldozers

READER COMMENT

Weight-mile-tax costs

Sir: You have very clearly expressed the problem for road users in your editorial "What taxes for roads?" in the Nov. 6 issue of ENGINEERING NEWS-RECORD, p. 144, but there is an error in the statement about the cost of administering the weight-mile tax in Oregon. The cost has been approximately 4½ percent of the intake rather than 11 percent as quoted.

R. H. BALDOCK
State Highway Engineer
Salem, Ore.

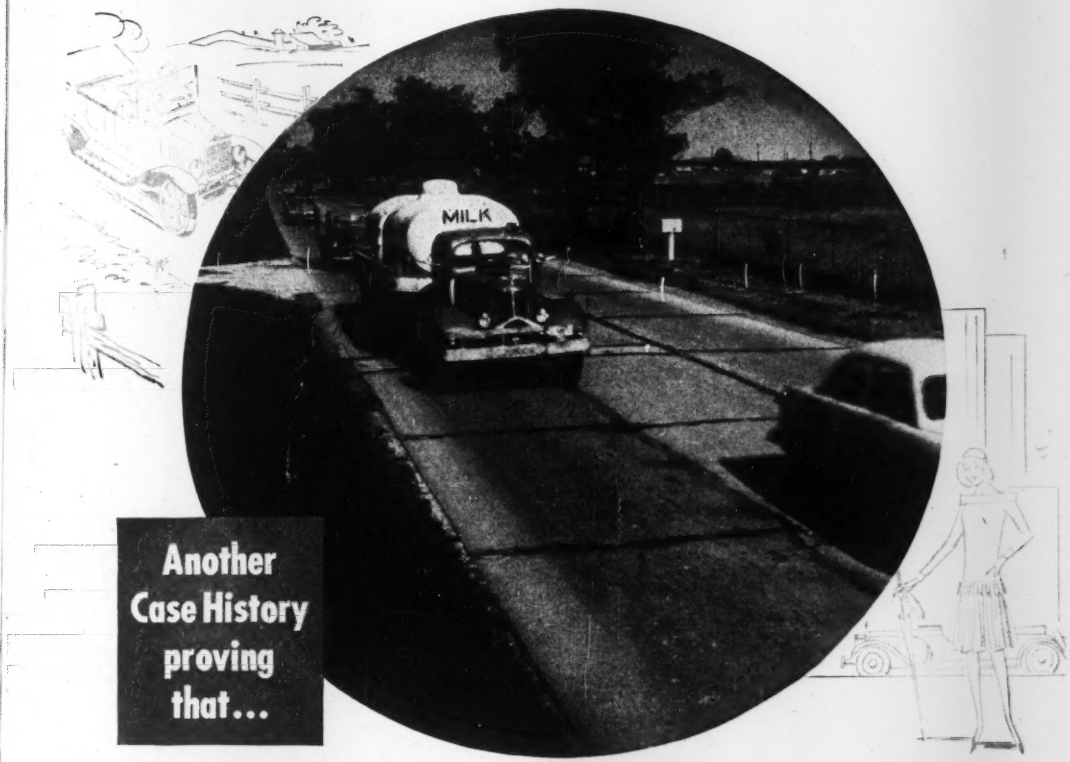
ED. NOTE: We are glad to learn that the cost of administering this tax is as low as Mr. Baldock states. The figure given in our editorial was taken from an article "Who Pays for Roads" written by State Senator Richard L. Newberger of Oregon, which was published in the October, 1952, issue of Harper's Magazine. An examination of the figures sent by Mr. Baldock would indicate that Senator Neuberger took the total administrative costs of the Public Utility Commission, only a part of which, the commission states, are directly chargeable to administration and collection of the weight-mile tax on trucks.

How barge climbs supports

Sir: We note what appears to be a discrepancy between pictures and text in the article "Barge puts down legs, becomes pier" (ENR May 29, 1952, p. 44). In the picture, the lower cylinder of the circular jack does not appear to be attached to the barge as reported. The large rods shown extending from the deck of the barge, which we assume support the weight of the barge, are attached to a flange on the upper cylinder of the jack. With this arrangement, it appears that the barge is lifted by the upper cylinder when it is raised by expanding the accordion section of the jack while the lower cylinder of the jack grips the pile. The small jacks mounted on the upper cylinder of the circular jack are evidently used to raise the lower cylinder and help deflate the accordion section.

W. T. GUENZEL
Humble Oil & Refining Co.
Houston, Tex.

EDITOR'S NOTE: Mr. Guenzel has correctly described the operation of the jack. In other words, it is the upper cylinder and not the lower one, as stated in the article, that lifts the barge up the pile supports.



Another Case History proving that...

Concrete Roads Deliver Unexcelled Service and Economy

This old concrete highway is Higgins Road, Ill. Route 72 near O'Hare Field northwest of Chicago. It was built in 1924 to replace another pavement which had lasted only five years under the comparatively light traffic of that period.

This concrete road now has served more than five times longer than the original pavement. It has rendered this service in the face of tremendous increases in traffic weights and volumes.

In places the road shows the scars of this burden, but in general its condition still is good. Today it is handling a daily average of 4,000 vehicles, 500 of them commercial.

Higgins Road paid for itself long ago. It has required only modest annual maintenance. During its lifetime, though, other types of pavement have been replaced or have eaten deeper and deeper into highway funds for maintenance.

Like Higgins Road, hundreds of miles of concrete pavement all over the country have served beyond their life expectancies and are carrying well over design loads. Some are resurfaced but it's still the concrete that's carrying the load.

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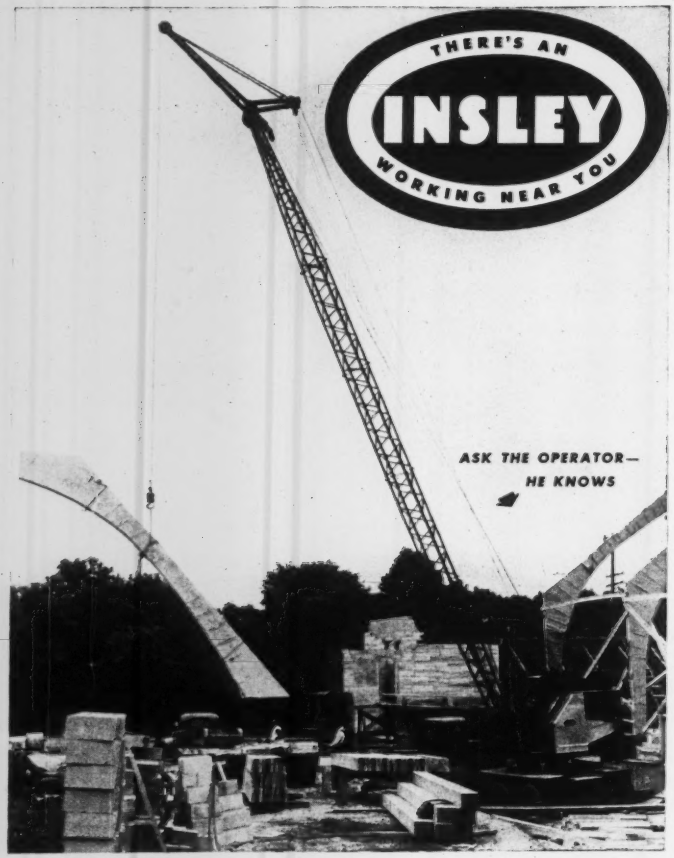

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READER COMMENT

Million pardons

Sir: On p. 77 of ENR for Nov. 20 there are two photographs of "sedimentation sleuths." Under one there is a statement concerning the shifting of 163 tons of silt in the Missouri River each year. This amount certainly is incorrect. Could that figure be per day or month?

JOE M. LARA
Bureau of Reclamation
Denver, Colorado

EDITOR'S NOTE: As a matter of fact, it could be "per 31.5 seconds." The word million was lost from a caption that originally read 163 million tons per year.

Omission

Through a typographical error, the name of the H. K. Ferguson Co., Inc., Cleveland, Ohio, was omitted from the list of members of the National Constructors Association, in an article on that organization in ENR Nov. 6, p. 118.

O. F. Sieder, executive vice-president of Ferguson (ENR June 5, p. 62), served on the NCA executive committee during its formative years, and E. D. Hoekstra, Ferguson labor relations manager, is now an active member of the same committee. . . . Editors.

CALENDAR

Highway Research Board, annual meeting, National Research Council Bldg., Washington, D. C., Jan. 13-16.

American Society of Photogrammetry, annual meeting, Shoreham Hotel, Washington, D. C., Jan. 14-16.

National Association of Home Builders, Conrad Hilton Hotel, Chicago, Ill. Jan. 18-22.

American Society of Landscape Architects, annual meeting, Ansley Hotel, Atlanta, Ga., Jan. 26-28.

Association of Asphalt Paving Technologists, Rice Hotel, Houston, Tex., Jan. 26-28.

Mason Contractors Association of America, Sherman Hotel, Chicago, Ill., Feb. 1-4. California Street and Highway Conference, University of California, Berkeley, Feb. 4-6.

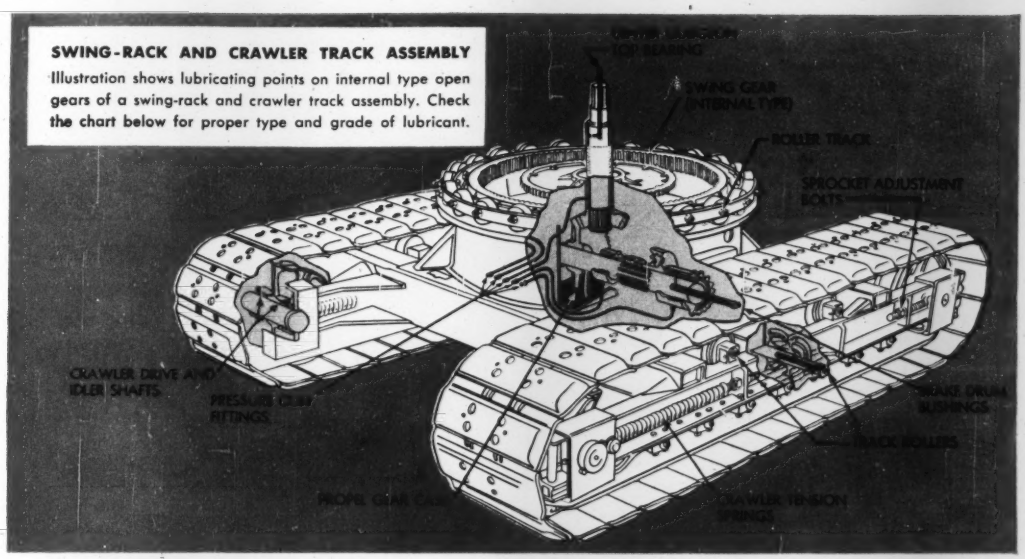
American Road Builders Association, Hotel Statler, Boston, Mass., Feb. 9-11.

American Concrete Institute, annual convention Statler Hotel, Boston, Mass., Feb. 17-19.

Ohio Water Clinic, Ohio State University, Columbus, Feb. 19-20.

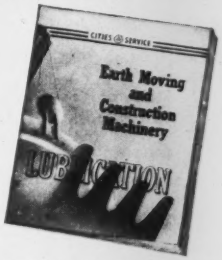
Illinois Conference on Highway Engineering, Urbana, Feb. 24-26.

Industry conference on air pollution abatement, Hotel Statler, Detroit, Mich., Feb. 26-27.


SWING-RACK AND CRAWLER TRACK ASSEMBLY
Illustration shows lubricating points on internal type open gears of a swing-rack and crawler track assembly. Check the chart below for proper type and grade of lubricant.
SWING GEAR (INTERNAL TYPE)
ROLLER TRACK
SPROCKET ADJUSTMENT BOLTS
CRAWLER DRIVE AND IDLER SHAFTS
PRESSURE GUN FITTINGS
TRACK ROLLERS
CRAWLER TENSION SPRINGS

Where, how and with what to lubricate?

Lubricating procedures and suggested materials discussed on this page represent just one of the many invaluable sections contained in the newest Cities Service EARTH MOVING AND CONSTRUCTION MACHINERY LUBRICATION BOOK. For your FREE copy, write Cities Service Oil Company, Dept. L-14, Sixty Wall Tower, New York City 5.



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LUBRICATION OF SWING-RACK AND CRAWLER MECHANISM

Part or Unit	How Lubricated	Lubricant Recommended	Grade No. 0° F. to 32° F.	Grade No. Above 32° F.
CRAWLER MECHANISM— Track rollers, idlers, track wheels, etc.				
Oliver:	Track Wheel System	Trojan Gear Oil	#90	#140
Allis-Chalmers:	Positive Seal Units	Trojan Grease	P-0	P-0
Others—				
Grease Lubricated:	Pressure gun fittings	Trojan Grease	A-0	A-1
	Pressure gun fittings	Trojan Grease	F-3-0	F-2-0
Oil Lubricated:	Hand gun or other means	Trojan Gear Oil	#90	#90 to #250
GEAR DRIVES—				
Open: Normal Condition	By brush or other means	Cisco Compound	#3-Z	#5-Z
Dusty Condition	By brush or bath	Raven Oil	#3	#7
Enclosed:	Bath	Trojan Gear Oil	#90	#140

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Population Shifts—Key to Construction Markets

Suburbs of big cities will be a major and growing market for new construction over the next few years. New figures from the 1950 Census of Population show that population around cities is growing almost 2½ times as fast as population in the country as a whole.

U. S. population grew 19 million, or 14.5% between 1940 and 1950. Most of this growth—15.2 million, an increase of 22%—came in or around cities. By 1950, almost 56% of all Americans lived in or near cities of 50,000 or more, compared to 52.5% just ten years earlier.

But the key facts appear in the breakdown of this growth in metropolitan areas. The cities themselves are not growing nearly as fast as the neighboring areas. Population in cities of 50,000 or more increased only 13.9%, while the areas immediately around them grew fully 35.6%. Almost half of all population growth between 1940 and 1950 came in sections near—but not in—these cities.

• **Details**—The trend of population toward cities and their surrounding areas is not new; it's been going on for many years. But the new census figures show some details of the trend that are highly important for builders. The growth figures pinpoint present and future markets for construction of everything from roads and sewers to houses and retail stores.

1. Big cities are still growing. But they are growing much slower than their surrounding areas. Chicago, for instance, increased its population only 6.6%, while the number of people living near Chicago went up fully 31%.

These population figures—re-emphasize the growing need for all kinds of urban facilities in suburban areas near major cities. Work in many of these growing markets has fallen far behind needs as a result of defense activity (which cut down on building of stores and recreation projects) and slow action of communities in making money available for public schools, roads and other facilities. But activity in these lines is already picking up, and the size of the population shift means that this will be a major market for construction for many years. An article describing such growth in Westchester County, a suburban area of New York City, will appear next week.

Slower growth in larger cities also indicates where their construction needs are likely to lie in the future. Many of the people in surrounding areas still work in the big city. So the need for office buildings and transportation and related facilities—access roads and parking facilities, especially—will go on growing even though city growth is slowing down.

2. Small cities are growing faster than big cities over 100,000. And many of these smaller cities are still growing faster than their suburbs. In these cities, needs for housing, sewer and water systems, stores and similar structures are still increasing rapidly.

3. Southern cities especially are still growing faster than their suburbs. There are some exceptions; New Orleans, for instance, grew 15%, while surrounding areas almost doubled in population. But Raleigh, North Carolina, is more typical of the South. In Raleigh, population increased 40%, while neighboring population went up only 13%.

These figures reflect the relatively recent shift of Southern population to cities as Southerners turn more and more to industry instead of agriculture. (Farm population dropped 27% in the South between 1940 and 1950; that was the largest decline in any region.) If the South follows the pattern of the rest of the country, her cities will continue developing fastest for a while. Suburbs will speed up their relative growth some time in the future. So the chief emphasis in the South is likely to be on city construction now, suburban construction later on.

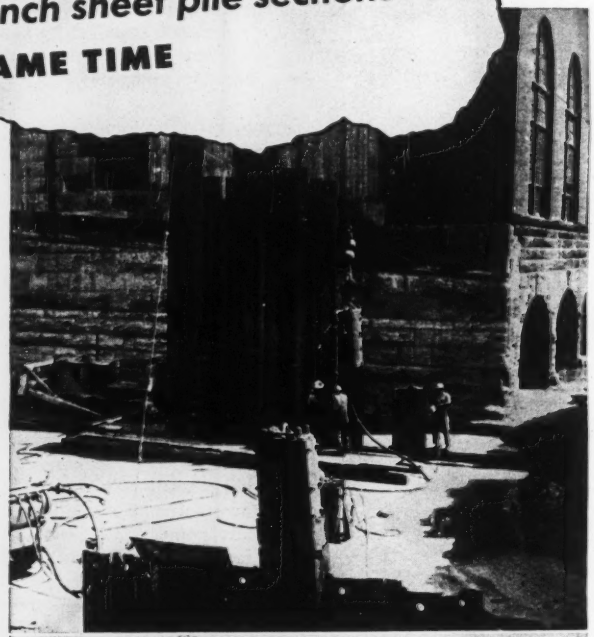
4. In general, the fastest growing metropolitan areas—including both cities and suburbs—are in the South and Far West. So the biggest gains in urban construction are likely to be made in these regions over the next few years.

Driving two 16-inch sheet pile sections AT THE SAME TIME

In constructing a lock and dam near St. Anthony Falls in the Mississippi River, the contractors had to build a deep sheet pile cut-off wall inside of a big cellular cofferdam to insure a dry excavation. McKiernan-Terry Double-Acting Pile Hammers helped speed the project by doing a *two-in-one driving job.*

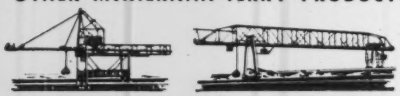
With every blow, *two* 16-in. steel sheet pile sections were driven into sandstone with the aid of a high-pressure jet by a McKiernan-Terry No. 9-B-3 Double-Acting Hammer in some instances and a No. 7 Double-Acting Hammer in other instances. Driving conditions were difficult because the sandstone crumbled into snow-white sand, but both of the powerful McKiernan-Terry Pile Hammers quickly drove the two steel sheet piles an average of 30 to 40 ft. down to 11 feet below the deepest excavation.

Wherever you find tough pile driving jobs, you are likely to see McKiernan-Terry Pile Hammers at work . . . under all conditions, on every type of terrain. Discover their dependability and profit-making possibilities for yourself. Complete McKiernan-Terry line includes 16 sizes of single-acting and double-acting hammers and two sizes of double-acting extractors. Send for bulletin.



McKiernan-Terry Pile Hammers sink steel pile sections two at a time on this Mississippi River project at Minneapolis, Minn. Contractors were Al Johnson Construction Co., Minneapolis, (Sponsor) and Peter Kiewit Sons' Co., Omaha.

OTHER McKIERNAN-TERRY PRODUCTS



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MK 319

• **Power expansion due**—If you have any doubts as to the future for the construction industry in the next few years—take a look at plans of electric utilities. According to P. L. Smith, president of the National Association of Electric Companies, the utilities will spend something like $40 billion by 1960 for expansion and improvement.

Smith looks for a capacity total of 120,000,000 kw—triple the level supplied by the industry in the immediate postwar period.

Meanwhile, Gordon R. Clapp, chairman of the Tennessee Valley Authority says that next year and the year after, as far ahead as the TVA can see, they must add 750,000 kw of new capacity to meet new demands.

• **Business guide**—And if electric utilities aren't quite your line, take a look at the Department of Commerce's opinion for the first quarter of 1953:

Business expansion in new plant and equipment, says Commerce, will hit a record rate in the first quarter of '53. The spending will be at the rate of $28.7 billion a year. This will be a 4.6%-increase over the rate of spending in the first quarter of '51, and 1.5% above the rate in the same period of '52.

Manufacturing and public utilities are slated to show the biggest increases, with plant expansion spending by manufacturers alone up almost 12% over the '52 quarter, and utilities up nearly 6%. Commercial construction also will show an uptrend.

• **Labor notes**—There's a good reason for the construction industry's general lack of opposition to the naming of plumber Martin Durkin as Labor Secretary. One thing to look for is strengthening of the industry's Joint Board for Settlement of Jurisdictional Disputes: It's no particular secret that Durkin's plumbers have been getting set to walk out of the board some time in early spring. But with their own ex-president as Secretary of Labor, it's not likely the plumbers will embarrass him that way.

Elsewhere, you can look for increasing union pressure for state-wide bargaining with contractors, particularly on welfare items. Unions are getting increasingly impatient with need to bargain in every hamlet, and are getting worried about their own jurisdictional areas. They figure they can do better by establishing a state-wide rate, rather than by resorting to rubber-band territorial boundaries to cover work starting in unexpected—and sparsely populated—areas.

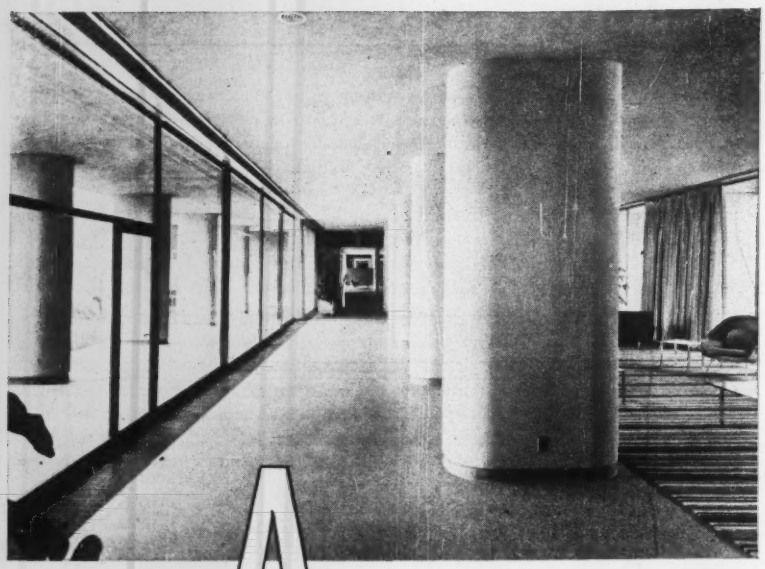
• **New commissioner?**—The guessers had five names to offer this week for Commissioner of Reclamation to succeed controversial ex-newspaperman Mike Straus in the post.

They are: Ole Larson of Salt Lake City and Harold T. Nelson of Boise, regional directors for the bureau; Leslie N. McClellan, bureau chief engineer at Denver; George D. Clyde, chief of the Division of Irrigation Engineering, Logan, Utah; and Harry E. Pok, North Dakotan who is a former president of the National Reclamation Association.

Meanwhile, the Interior Department has shelved its earlier intention to send the outgoing Congress all its available proposals and reports on future programs—has decided instead to hold off such reports until the new Congress meets—or at least until Congress asks for them.

• **Engineering center**—Watch carefully those guardedly announced plans for national engineering center in Washington, D. C. What's being talked about is an office building, with the top floor occupied by the newly chartered National Engineers Club.

But there's more to it of national significance than that, according to members of the Engineers Club of Washington, the organization which is sponsoring the idea.



SIMPLIFIED CONSTRUCTION—Each column facing requires only two U-shaped concrete slabs, pre-cast and shop-matched for perfect fit. Beauty and all-weather durability make slabs excellent for both exterior and interior use.

Apartment on columns

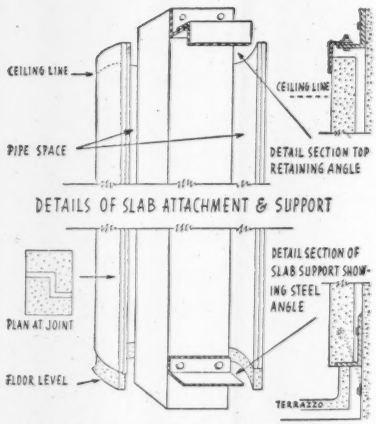
ARCHITECTURAL CONCRETE SLABS COVER INTERIOR AND EXTERIOR COLUMNS, UNIFYING DESIGN

For see-through spaciousness, integrating lobby and gardens into visual unity, the new Manhattan House in New York rests upon 74 handsome columns. Beautiful column facings are pre-cast concrete slabs made with Atlas White Cement and white quartz aggregate . . . attractively accenting the open areas in the building base.

Two flat U-shaped slabs (see detail at right) are joined to form each column. Shop-fitted with shiplap joints, each pair encloses a support column and conduits. Design of the entire ground floor is integrated because concrete slabs are used indoors as well as out.

You will find many beautiful and original uses for concrete facing slabs made with Atlas White Cement. The range of forms, textures and colors is tremendous. And because Atlas White Cement is a true, uniform white, it enhances the rich color values of both aggregates and pigments.

Atlas White Cement complies with ASTM and Federal Specifications. For further information see SWEET'S Catalog, Section 4E/7a and 13C/5, or write Atlas White Bureau, Universal Atlas Cement Company (United States Steel Corporation Subsidiary), 100 Park Avenue, New York 17, N. Y.



Only 2½" thick, the concrete-slab column facing, above, is 11' 3¼" high, extending 3½" above ceiling line. It has all the strength of reinforced concrete. Slabs made with Atlas White Cement can be cast in sizes up to 100 square feet or more, complete with lugs and hooks for anchoring and handling. The small number of joints in such large sections often minimizes time and cost of erection.

Architects: *Mayer and Whittlesey and Skidmore, Owings & Merrill.*

Contractor: *Cauldwell-Wingate Co.*

Owner: *New York Life Insurance Co.*

MoSai Precast Facing Slabs: *Dextone Co., New Haven, Conn.*

ENR-WCS1-33R

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Shakeup urged in flood control

Congress this week spoke out for closer control of water resources development projects and for clear limitation of Agriculture Department responsibility in flood control programs. These objectives were stressed in the first two of four reports to be issued by the House Subcommittee on Civil Works.

One of the two documents—on the civil functions program of the Army Engineers—laid open the deficiencies of Corps procedures, and criticized the Army Engineers for assuming too much authority in disregard of the intent of Congress. The report called for up-to-date review of all authorized projects by the Public Works Committee before money requests are considered.

In its study of Agriculture's place in flood control, the committee said that the department should retain top authority for soil conservation and land improvement works, but that it should submit all proposals for flood-control operations involving sizable structures to the Army Engineers for review and approval. The Corps of Engineers would be responsible for relating these flood-control projects to its own programs and would transmit the coordinated plans to the Public Works Committee for consideration.

• Engineers criticized

Despite the many criticisms of Army Engineer practice contained in its report, the attitude of the special study group was friendly to the Corps of Engineers. But it aimed some pointed barbs at weak points in Army Engineer operations:

• Actions of the Army Engineers on preliminary examinations and surveys indicate procrastination and favoritism. But the report declares that present restrictions on supplemental reports—needed to bring surveys up to date—are unsound. They should be required, it says.

• The Corps of Engineers has never made specific use of the directive to submit supplemental reports to Congress. This directive was written into the Flood Control Act of 1941 and all later acts. Failure of the Army Engineers to let Congress see its monopolistic attitude.

• The committee has directed the Chief of Engineers to supply the information for segregating the current enormous backlog of projects into two categories—inactive and active. Purpose is to weed out and cancel dead projects that are no longer desirable or feasible. Present backlog includes more than $8 billion of projects not yet started and some $4 billion of works or programs already under way. To complete the entire backlog at the current rate of appropriations would take more than 25 years.

• Glaring deficiencies that show up in Army Engineer construction estimates have not been corrected quickly, as they would be by a properly competent organization. Less than 60% of the increases in projects costs are due to price changes, while nearly 25% of the higher costs can be charged to changes made in the projects by the Army Engineers themselves. An example is McNary Dam, where the generating capacity was increased from less than 400,000 to nearly 1,000,000 kw and the lock was changed from 56 x 360 ft to 86 x 675 ft. The committee questions the assumption of authority by the Army Engineers to make such major increases without additional approval from Congress.

• Basin authorizations like those for the Missouri, Ohio and Columbia Rivers, are extremely general in character. They give the Chief of Engineers wide latitude in selecting projects, but Congress does set limits on the amount of money that can be voted for each basin program. There are now 18 programs for flood control and two for river and harbor improvements. In six of the basins the Army Engineers have started work that will cost more to complete than Congress has so far appropriated. In the opinion of the committee, this action by the Corps of Engineers—and by the Reclamation Bureau—is a breach of faith with Congress.

• Voting of planning funds to prepare working drawings and specifications for a proposed project has become a pork-barrel practice, frequently resorted to as a political expedient.

• **In defense**—There is no lack of defense against committee criticisms of the Army Engineers. The Corps has given the committee a 500-page summary of its civil works program that answers the most damaging accusations. ENR will report the Engineers' side of the case in an early issue.

Work of the subcommittee terminates Dec. 31 but the committee recommends creation of a permanent subcommittee to keep water development programs under constant review.

• Agriculture scored

The Department of Agriculture may have to give up the bulk of its flood control work if recommendations of the subcommittee made this week are adopted by Congress.

In a report on the department's flood control program, the subcommittee concluded that waterflow retardation and soil-erosion prevention are not flood control and should be pursued under the land-management program.

The report was critical of the work that had been done by the department with $54.5 million it had received for upstream flood control work since passage of the Flood Control Act of 1936 and it characterized results of $18 million spent on surveys as "deplorably meager and inadequate." The report pointed out that the department has 1,000 surveys pending and has completed only 60 in 15 years.

The subcommittee recommended:

• Legislation to cancel present authority for the department to make flood-control surveys under Public Works Committee or flood control law.

• Legislation requiring the Secretary of Agriculture to make recommendations for future flood control work through the Corps of Engineers.

• Repeal of authority under the Flood Control Act of 1936 for the Secretary of Agriculture to make preliminary examinations and surveys for runoffs, water-flow retardation, and soil-erosion prevention.

• That no new authority be given the department for examination and survey for flood control that would parallel authority of the Corps of Engineers.

• **The outlook**—The subcommittee report will be taken up by the new Public Works Committee that will be formed shortly after Jan. 3. Since Rep. George Dondero is slated to become chairman of the full committee, the recommendations are expected to get serious consideration.

AT THE ASPHALT VS. CONCRETE HEARING in Ohio are (left to right): R. D. Hamilton, counsel for R. H. Shafer; Paul A. Griffith, his associate counsel; D. R. Hertz, trial counsel; a court reporter; Judge Robert P. Duncan, referee; B. W. LeSueur, J. E. Greiner Co. engineer, on the witness stand; John Lausdale, Jr., and L. E. Oliphant, counsel for the Turnpike Commission. (ENR photo)

Legal troubles harass Ohio Turnpike; other road, bridge plans active

Although it is in the middle of a legal battle, the Ohio Turnpike Commission last week moved to take bids Jan. 3 for concrete construction on 5.2 mi at the eastern end of the 241-mi turnpike. Court action is pending to force the commission also to consider bids on asphalt.

Referee Robert P. Duncan last week took the asphalt vs. concrete case under advisement following nearly month-long hearings (ENR Dec. 4, p. 25). During the succeeding five weeks, counsel for both sides will have opportunity to file briefs. Duncan has indicated he will hand up a ruling as soon thereafter as possible.

Meanwhile, a major bridge project on the turnpike is being delayed by a railroad-turnpike commission disagreement over easement provisions. The Horvitz Co. is stymied on its $1.2-million contract to construct the Cuyahoga River Bridge substructure by refusal of the Baltimore & Ohio Railroad to permit construction workers on the railroad right-of-way where bridge Pier No. 4 is to be located. The other 23 piers can be built without encroaching on B&O property.

The controversy with B&O is part of a skirmish with nine railroads along the turnpike that have refused to permit any easements pending adoption of a standard form of agreement still being negotiated. Principal stumbling block, according to commission attorneys, is the railroads' contention that they should be indemnified perpetually against all forms of damage arising from the turnpike regardless of cause. In event of an impasse, another court battle looms.

The turnpike commission last week approved plans for the piers that will carry the Ohio Turnpike Bridge over the Maumee River north of Maumee. Bids will be asked in two weeks. Construction is expected to start March 15 with completion set for October, 1954.

• Plans for toll road

Highway and bridge activities across the country were highlighted last week by Texas' chartering the Sam Houston Turnpike Corp. to build a $150-million, 276-mi toll highway from the Dallas-Fort Worth area to San Antonio.

President of the corporation is J. Edward Johnson, a Dallas attorney. Vice president and chief engineer is Roy W. Smith. They predicted that the highway could be constructed in two years "if no hitches develop." The project will be financed with revenue bonds, to be paid off by tolls ranging upward from 1-cent a mile for passenger cars.

Earlier the Dallas and Fort Worth chambers of commerce had announced that a bill to create a turnpike authority for construction of a $31-million, 30-mi superhighway between the two cities will be introduced in the 1953 state legislature. Fort Worth already has voted money to purchase the necessary rights-of-way. Dallas is lagging with appropriation made for only part of the funds.

A recommendation by the Washington State Highway Commission for construction of a 70-mi toll highway from Tacoma to Everett has received the backing of the state legislative Interim Committee on Highways, and is now scheduled to go before the 1953 legislature. The route would pass through Seattle.

Momentum is gathering behind a proposed $180-million Wisconsin toll road to run from the Illinois border near Genoa City to near Hudson. The next session of the legislature will be asked for an appropriation for engineering studies.

A proposed $100-million toll highway in Alabama from Decatur through Birmingham to Mobile, buried by the 1951 legislature, may be resurrected. A special legislative toll-road study committee has gone on record favoring toll roads for the state. It will ask the 1953 legislature for money to finance engineering surveys.

• Bridge projects spurred

The Louisville, Ky., Bridge Commission has under consideration a recommendation from Coverdale & Colpitts for construction of two bridges over the Ohio River to connect Louisville with southern Indiana. Cost of the projects may run between $20 million and $30 million.

At present, cross-river traffic between the two points is estimated at 16,100 vehicles annually. Only two bridges are in use—one a toll bridge, owned and operated by the Kentucky and Indiana Terminal Railroad Co.; the other a free municipal bridge which carries about 78% of the traffic.

The Coverdale & Colpitts report says at least two new toll bridges are needed and the present municipal bridge should be converted into a toll bridge. The proposed toll schedule would produce sufficient revenue to retire a $20-million bond issue in 15 years, a $25-million issue in 18 years, and a $30-million issue in 22 years.

Construction of a new toll bridge over the Ohio River at Parkersburg, W. Va., may get under way in January now that the Parkersburg city council has approved a $4.5-million contract and entered into an agreement for a $6.5-million revenue bond issue to finance the project. Completion of the 6,400-ft. two-lane structure is expected sometime in 1955. Contractor William J. Howard, Inc., said construction will start as soon as money from the bond issue is deposited.

Federal payments to Oregon's Wasco County for bridge site condemnation have marked the start of work by Guy F. Atkinson Co., and Ostrander Construction Co. on a new bridge to span the Columbia River near The Dalles.

More adequate highway financing sought by state road officials

J. R. Carr
Associate Editor

Highway officials are encouraged by the outlook for more and better highway construction, but they will need more funds with which to do it. This was the general expression at the 38th annual meeting of the American Association of State Highway Officials held in Kansas City last week.

Today's highway picture was presented in realistic detail by B. D. Tallamy, Superintendent of Public Works, New York state, in his presidential address. On the encouraging side, said he, are the facts that the public is becoming acutely aware of the need for better highways and is supporting various means of financing them. Congress has approved the largest federal-aid bill in history, and the crippling steel shortage is expected to be eased greatly by early next summer.

As Mr. Tallamy views it, the next few years hold a bright prospect for adequate highway programs.

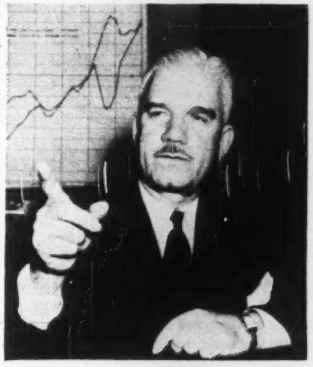
• Highway deficiencies grow—On the other side of the picture, declared Mr. Tallamy, the estimated deficits on the federal-aid system alone add up to $32 billion. The total highway requirements are more than $45 billion. At the same time, we are losing ground each year to the deadly attrition of highway obsolescence, the spectacular growth of traffic, and increased highway construction costs.

• Local financing problem—The only solution is greatly increased highway expenditures in the years ahead. But, warned Mr. Tallamy, we must not look to Washington, D. C., for all the solutions of this problem. Basically, the responsibility for highway financing is a local one. Each state must seek its own solution.

Mr. Tallamy urged those state highway departments that have not done so already, to implement studies of new financing methods, so that long-range, expanded highway programs may be founded on carefully considered financing practices. Moreover, said he, the new Congress should initiate a survey at the national level pertaining to federal responsibility.

• More data needed—A strong plea for the state highway departments to furnish legislative bodies with more factual data on their road-building needs, was made by Thomas H. MacDonald, Commissioner of Public Roads.

To supply law makers with full data from continuous engineering and economic surveys is the most important single duty of responsible highway officials, he commented.



BERTRAM TALLAMY reviews outlook for highways, finds it encouraging.

Highway officials are confronted with diverse problems, declared Commissioner MacDonald. Involved are the continued use of the highways by trucks carrying destructive loads, financing need far in excess of current income, and development of a fair distribution of costs among users and among the various units of government.

Still other factors that should be developed, Mr. MacDonald stated, include: Determination of the necessary annual rates for capital improvements; how best to apply the proved technical knowledge to design and construction; revision of our inadequate legal structures; and how to apply a multiple variety of economic data from the service life of roads to the real costs of transport relative to sizes and weights of the vehicles being used.

• Vehicle mileage rises sharply—In reviewing the highway picture during the past three decades Commissioner MacDonald pointed out that the number of registered vehicles in the United States does not represent a true measure of the increasing load on our highways.

During the period from 1921 through 1930, there was an average of 19,900,000 registered vehicles. Today there are 52,360,000—representing an increase of 168% over the 1921-1930 average. But a far more accurate gage of traffic demand is found in the amount of travel. Measured in vehicle mileage, this increase today is 310% over the average for 1921-1930.

Higher speeds of vehicles and the increased frequency of heavy-axle loads are two major factors. The higher speeds require improved geometric design standards incorporating wider traffic lanes, safer horizontal curvature, and longer sight distances.

The heavier axle loads also require a sharp upward turn in structural design requirements.

• Maintenance costs soaring—The high cost of highway maintenance came in for considerable discussion at one of the technical committee sessions. R. H. Baldock, state highway engineer of Oregon, declared that present revenues for building highways and streets are just about one-half of what they should be.

Until this need is taken care of, said he, highway maintenance costs will continue to increase until this country bogs down still further in the mire of critical highway deficiencies. This would be a serious blow to the economy of the entire nation.

Highway maintenance costs last year, said Mr. Baldock, were 122% above those of 1935, and 10% above 1950. The labor cost on this work is 164% above the 1935 average.

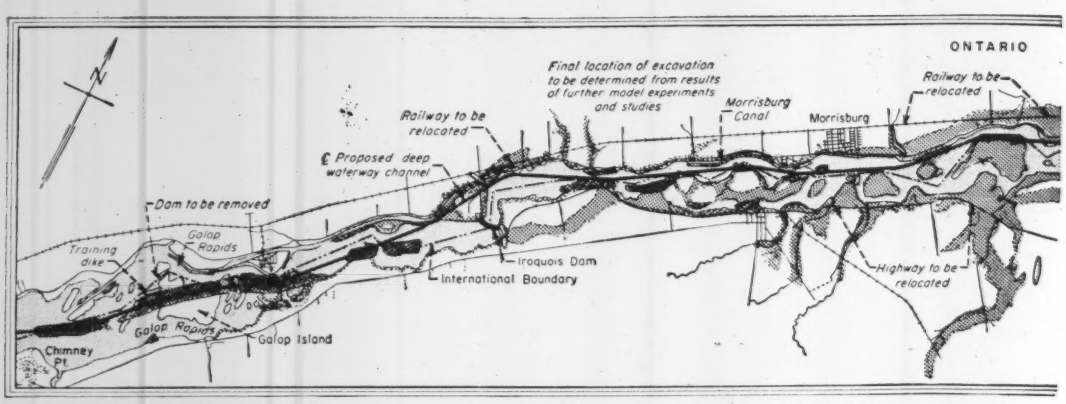
Charles M. Ziegler, Michigan, was elected president of the AASHO, succeeding Tallamy. A. E. Johnson, Arkansas, was elected first vice president to succeed Ziegler. Other newly elected vice presidents are: G. A. Hill, Conn.; D. H. Bray, Ky., R. M. Whitcon, Mo., and G. T. McCoy, Calif.

Memo to Congress

One of the most significant resolutions adopted by the association requests Congress to increase federal aid for highways "to an amount not less than the full amount collected by the federal government as a federal tax on gasoline."

Traditionally only one-fourth of the federal gasoline taxes collected are returned to the states for highways. This would mean that instead of the $550 million authorized under the 1952 Federal Highway Act, the states would get close to $2 billion annually.

The resolution stresses the fact that although an early solution is needed to modernize our highway system, sufficient funds are not available to undertake the job on a full scale basis. "Moreover," says the resolution, "in support of the national program now being undertaken by private industry in the immediate recognition of our highway problems, it is evident that all gasoline funds collected, must be made available for highway administration, construction, reconstruction and maintenance."



INTERNATIONAL RAPIDS SECTION of the St. Lawrence River where the Power Authority of the State of New York and the Hydro-Electric Power Commission of Ontario propose to build dams and power plants required for the development of 2,000,000 hp. Main features of the project are the Long Sault Dam across one channel of the river at the head of Barnhart

Outlook brightens for St. Lawrence project

- **FPC decision may start $537-million project**
- **Opposition weakens as hearings near end**

Surprisingly little opposition developed at hearings on the $260-million U. S. portion of the St. Lawrence power project that went into their second week before a Federal Power Commission examiner in Washington.

The Power Authority of the State of New York is seeking a federal license to build and operate the 940,000-kw plant in the International Rapids Section of the St. Lawrence River (ENR Sept. 11, p. 21). The Hydro-Electric Power Commission of Ontario would build the Canadian portion of the project, which substantially would equal the U. S. portion both in capacity and cost.

On the surface, it appeared the hearings might be concluded this week. Standard procedure then is for all parties to file briefs and later to present oral argument before the commission itself.

Examiner Glen R. Law, presiding over the hearings, has thus far been able to head off delaying tactics of the opposition. He is the same examiner who in 1950 recommended that a similar application by the N. Y. authority be turned down on the ground that both the power project and an accompanying seaway project should be undertaken jointly by the federal governments of the two countries.

In 1950, the commission followed Law's recommendations and ordered that the application be set aside. The FPC order was appealed to federal courts and remained there until August of this year. When Congress declined to authorize full U. S. participation in the seaway and power project, the court remanded the case to FPC for further consideration.

• Proposed construction—Proposed by the New York Power Authority and Ontario Hydro is a dam at Iroquois Point to control the outflow from Lake Ontario. This was stipulated by the Canadian government as a prerequisite to its approval; included also is construction of a dam across the Long Sault Rapids at the upper end of Barnhart Island and a combined powerhouse and dam across the other main channel at the lower end of that island. There also will be numerous dikes to limit the area that would otherwise be flooded as a result of the construction of those dams, and there will be channel dredging to improve flow conditions.

Normal pool level, back of the power dam ultimately will be at el. 242, and tailwater will be el. 154 ft, giving a minimum head of 88 ft to be developed at the power plant. The average flow is 237,000 cfs, or enough to justify an installation of 2,200,000 hp with an average annual output which totals 12.6 billion kilowatt-hours.

Each country can use half the normal flow of the river after deducting the 5,000 cfs that Ontario diverts into Lake Superior. That 5,000 cfs all goes to Ontario for use in its plant.

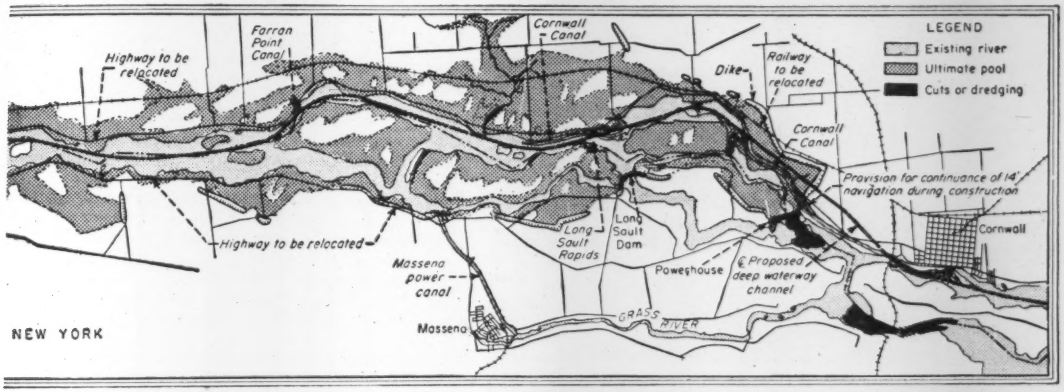
When the International Joint Commission approved the project, it stipulated, at the request of the Canadian government, that for the first ten years of operation the pool level be held at a maximum of 1.238 instead of the projected maximum of 243. The ten-year period may be shortened if a joint board of engineers determines that higher levels may be permitted.

• Cost to be divided—The total cost of this work, is estimated at $537 million, using December, 1950, prices. This is to be divided about equally between the power agencies of New York and Ontario, but Ontario Hydro will pay all the cost of facilities required to maintain navigation in the existing 14-ft canal on the Canadian side of the river. It also will pay channel deepening required for the projected 27-ft canal.

• Navigation facilities—As a preliminary to the application of the two governments to the International Joint Commission for authority to proceed with the work, the Canadian government announced its intention to go ahead with construction of the 27-ft deep ship canal between tidewater at Montreal and Lake Ontario. (The Welland Canal between Lake Ontario and Lake Erie now has a 27-ft minimum depth.)

Locks on the new canal would be 800 ft long, 30 ft wide and 30 ft deep over concrete sills.

When joint construction of the St. Lawrence seaway was proposed in 1941, locks and channels for the canal were to be mostly on the New York side in the International section. Under present plans, channels are to be chiefly on the Ontario side, with



Island and an international powerhouse across the other channel (and the International Boundary) at the lower end of the island. Also included is Iroquois Dam, about 28 mi upstream from the power plants, to control the outflow from Lake Ontario. The location shown for the projected deep waterway is tentative. Numerous earth dikes will be required to limit the flooded areas.

the locks located near the Ontario power plant.

Canada has agreed to proceed with this work so that it will be completed at substantially the same time as the power project. Canada also agrees to complete, at the same time, the ship-canal work in the wholly Canadian sections of the St. Lawrence (ENR Sept. 11, p. 21). The Canadian Department of Transport now has a staff of engineers working on plans for the seaway project.

• **Opponents heard**—Main opposition to the huge construction project comes from coal, railroad, and East Coast and Gulf Port interests who claim that the power project and the proposed seaway project would be detrimental to them. Several organizations representing these interests are intervening in the hearings as outright opponents of the New York application.

It appeared the opponents would offer no more than two or three witnesses to present the testimony on their behalf. William F. Howe, attorney for the National St. Lawrence Project Conference, indicated he would rely heavily upon cross-examination to build his case. His organization represents the port and railroad interests.

Jerome McGrath, one of the attorneys representing coal interests, reported he would have no more than one witness. He earlier joined in a plea to postpone the hearings till February, but examiner Law ruled against the delay.

Contentions of the opponents seem to boil down to two technical points:
• Because of the international nature of the project, FPC does not have legal authority to grant the N. Y. license.
• The power authority does not have the power to accept the required "recapture clause" written into federal licenses. This clause provides that the federal government may acquire the project after a period of 50 years.

Supporting the power authority's petition, but with qualifications, are two groups representing public power distributors in the project service area, and the Aluminum Co. of America. Municipally owned electric utilities and rural electric cooperatives are asking FPC to make sure they get a fair share of the energy produced at the proposed project. Alcoa, which now diverts a small portion of the St. Lawrence to power a hydroelectric plant near Massena, N. Y., is seeking to protect its present water diversion. Maintaining that diversion would add about $1 million to the cost.

• **Federal backing expected**—But supporters of the power authority application have rolled out the big guns. Evidence has been introduced which indicates the application has the full backing of the federal government. Representatives of the Canadian government and the Ontario commission have appeared to support vigorously the New York authority.

Appearing on behalf of the Ontario commission, Chairman Robert W. Saunders last Thursday told the FPC examiner: "If a license were granted this morning, I would be on the phone by noon telling our people to get under way."

In testimony on behalf of the N. Y. authority, Chairman John E. Burton said the project proposed by his agency would save power users an estimated $60 million a year in his state. Burton is an associate of Gov. Thomas E. Dewey who has long supported both the seaway and the power project.

Results of the November election appeared to help clear the way for the N. Y. authority application. There is little likelihood that any further attempt will be made to have the federal government build the power project.

In presenting the views of the Canadian government, Sydney D. Pierce stressed the need for electric energy in the area to be served by the project. He also emphasized that the power would be used directly for the production of defense materials of use to both the U. S. and Canada.

Hearings were set to begin Dec. 18 on another application for this project filed by the Public Power and Water Corp., of Trenton, N. J. But since the New York application has priority, both in point of time and nature of the applicant, the New Jersey application is not being taken seriously by observers at the N. Y. hearings.

$50-million bridge bonds suffer legal setback

California's supreme court last week ruled that the state toll bridge authority does not have the power to issue $50 million worth of bonds to pay for new approaches to the San Francisco-Oakland Bay Bridge.

The decision was a victory for San Francisco officials, who had contended that issuance of the bonds for approach construction would endanger financing of a second crossing. They also feared that the proposed construction, within a 10-mi radius of the present bridge, would tend to lead to the location of the second span parallel to the present bridge, as the state recommends, instead of at the southern site favored by San Francisco. They believed that the proposed approaches should be financed out of state highway funds and not be charged to bridge users.

PRODUCTION started last week at U. S. Steel's new Fairless Works. (Wide World)

First blast furnace firing marks record steel expansion

Firing of No. 1 Blast Furnace at U. S. Steel's $400-million Fairless Works last week marked the start of production at the largest single expansion in the steel industry's current $4.5-billion expansion program. Significantly it came near the close of the year which will record the largest expansion of steel-making capacity in the nation's history.

This year the steel industry spent a record $1.638 billion for new plant and equipment. Of this total more than $800 million went for construction, the rest for equipment. Next year expansion expenditures are expected to reach $1.428 billion, with over $700 million slated for construction—not as high as 1952, but higher than 1951.

By year's end, steel will be pouring from nearly 7,250,000 tons of new ingot capacity built this year. It will increase the national capacity to 116,000,000 tons, according to Iron Age. By early next year, capacity will be within striking distance of the 120,000,000-ton capacity set as the goal for defense expansion in 1951. And it will arrive well within the defense-established schedule.

Construction's stake in this expansion goes beyond its dollars and cents participation in building new plants. Construction and the manufacturers of construction machinery are the largest consumers of the nation's steel.

Next year you can look forward to steadily increasing availability of steel. Structurals will be easier to get in the first quarter, bars will be loosening, plates will be available by the end of the second quarter. By mid-year, steel is expected to be seeking new markets in building structures.

• **What's ahead**—By the middle of next year Fairless Works will be producing at a rate of 1,800,000 net tons of steel ingots a year. Work is progressing rapidly on other facilities to make hot rolled sheets, cold rolled sheets, tin mill products, bar products, and merchant pipe.

Next year Detroit Steel will be bringing in 750,000 tons of capacity at its Portsmouth plant in Ohio. Pittsburgh Steel is adding 325,000 tons. Tennessee Coal & Iron Division will raise its total by 200,000 tons at Fairfield, Ala. National Steel Corp. will be producing more, and so will Crucible Steel Co.

These will be in addition to the big completions this year: 1,200,000 tons for Youngstown Sheet & Tube Co.; 900,000 tons for Jones & Laughlin Steel Corp.; 800,000 tons for Bethlehem Steel Co.; 800,000 tons for Republic Steel Corp.; 750,000 tons for Inland Steel; 550,000 tons for Lone Star Steel Co. More than 6,000,000 tons of this expansion is represented by new open hearth capacity.

Certificates of necessity for fast tax write offs approved by the Defense Production Administration show the $4.5-billion expansion breakdown this way: $2.5 billion in steel works and rolling mills; $651 million for blast furnaces; $708 million for iron ore projects.

Of the total for steel works, approximately $1.125 billion is being spent for construction exclusive of equipment. Nearly $360 million is going for construction of blast furnaces. Over $332 million is being spent for construction on iron ore facilities, exclusive of equipment.

• **The Fairless story**—Placing the blast furnaces in operation at Fairless Works was the culmination of 21 months of construction activity on the grand scale. Plant cost alone has been estimated at over $400 million and the project has transformed a region from agricultural to industrial emphasis in its economy.

When U. S. Steel broke ground Mar. 1, 1951, it took 3,800 acres of farming land out of service. A major part of site preparation involved moving almost 10,000,000 cu yd of earth, to raise building areas above the Delaware River's flood plain (ENR Sept. 6, 1951, p. 28).

By early summer, structural steel was sprouting throughout the site. Enough building space was enclosed by early winter to permit machinery installation to get under way. New towns sprang up in the vicinity, while old towns tried to cope with undreamed growth problems (ENR May 15, p. 51).

Many industrial users of steel announced plans for building new plants near Fairless Works, giving promise of still greater development of the Trenton-Philadelphia axis.

Judge rules for U. S. in Fallbrook case

Federal Judge Leon R. Yankwich has ruled in favor of the U. S. against two of the defendants in the famous "Fallbrook case" over water rights in the vicinity of the Camp Pendleton, Calif., Marine base (ENR Nov. 6, p. 19).

The two were the Santa Margarita Mutual Water Co. which has applied to the state for the right to appropriate water from the Santa Margarita River, and the State of California.

The ruling is a secondary one, because Santa Margarita Mutual is not yet in business, but is seeking water rights.

Judge Yankwich held that the riparian rights of the government, through purchase of the Santa Margarita Ranch, and adjacent land of the Vail Rancho, left no surplus waters which could be appropriated.

Still to come to trial is the principal defendant, Fallbrook Public Utility District, which supplies water to some 8,000 acres of developed farm land. The district appealed to the Ninth District Court of Appeals to restrain Judge Yankwich from holding the trial in Los Angeles rather than in San Diego or from holding it at all. Pending outcome of that action, Judge Yankwich held over trial of the case against the district until Dec. 30. The present ruling would appear to mean a finding for the U. S. against the district if the matter comes to trial.

PRR streamlines tracks, terminals

One morning last week a de luxe train pulled smoothly out of the Pennsylvania Station in New York and headed south. In Pittsburgh another special train slipped out of PRR's terminal now being rebuilt and rolled east. Aboard were guests of U. S. Steel Corp. who were to witness firing of the blast furnace at Fairless Works near Morrisville, Pa.

As they neared the plant site they traveled over new PRR tracks. To serve the Fairless Works, PRR is spending some $9.4 million in construction of new facilities. For several months ore cars have been moving in over 9,000 ft of newly completed double-track siding. Construction is now moving ahead fast to expand the Morrisville Yard for traffic to and from Fairless Works and other industries building in the area.

For the Pennsylvania, its project at Morrisville is only one part of a construction program totaling $152 million since World War II. Last week, as PRR announced it had become the largest owner of diesel power as well as the largest owner of electric locomotives in the country, it could also lay claim to the largest single construction program of any railroad.

• **In the East**—Largest of PRR's Middle Atlantic undertakings is the $33-million improvement to facilities in the Philadelphia area.

New platforms and station facilities at Pennsylvania Station, and tracks, switches, communications, electrification equipment, shop and yard supporting facilities have been completed.

Construction men are now undertaking the following: Construction of additional station facilities at Suburban Station; removal of Broad Street Station, Filbert St. elevated railroad and old railway express facilities at a cost of $6.7 million; new railway express facilities to cost 4 million; new freight-handling facilities adjacent to Frankford Junction Yard with direct switching connection to the Pennsylvania's important industrial branch in the city's northeast area at a cost of nearly $2 million.

In South Philadelphia, a new $9-million ore pier (one of the largest of its kind in the country) is being constructed at Greenwich Point on the west bank of the Delaware. It consists of a reinforced concrete pier extending 850 ft into the river to be equipped with two electric ore unloading machines and an endless belt conveyor 54 in. wide and 1,600 ft long for transporting ore to hoppers over two loading racks.

The ore machines each have a maximum rated capacity of 1,200 tons per hour. To be completed in about two years, the facility is designed to permit future expansion and ground storage of ore. Provision to double the pier's capacity on short notice is built into the project.

Elsewhere in the Middle Atlantic area, PRR has been busy spurring new industrial services. Work will be finished this year on a $1.2-million project in the industrial area of Adams, N. J. At Roxbury, N. J., PRR is spending more than $1 million on construction of a new railroad bridge over the Delaware River and trackage to serve a new electric power plant. PRR traffic in Baltimore is being expedited over a new 6-mile spur and a new pier extension built at a cost of $4.5 million.

• **To the Alleghenies**—PRR's Enola Yards, near Harrisburg, are currently the busiest in the PRR system.

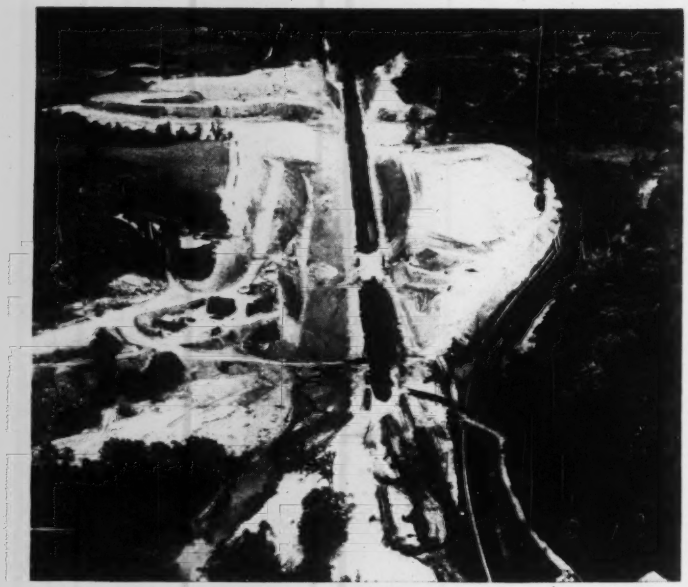
PRR has just spent $4.2 million for a new diesel-electric locomotive shop at Enola for locomotives operating in the freight pool, and $3.6 million for a similar shop in Harrisburg to service locomotives operating in the passenger pool. Both are among the most modernly equipped installations in the country. They keep PRR's large fleet of diesel locomotives rolling.

To these a new shop will be added in the system. Graders were busy last week at the site of a $12.8-million freight car repair shop to go up at Hollidaysburg, eight miles south of the huge PRR repair shops at Altoona. Construction is expected to begin early next year.

To be known as the Samuel Rea Shop in honor of the ninth president of the railroad, and a great engineer, it will be the largest in the country. The building portion of the project will be 2,600 ft long, 180 ft wide at one end and 270 ft wide at the other end, with a height of 54 ft. When completed in about two years, the shop will turn out 50 repaired cars a day.

Located in the path of the largest movement of system-owned cars, PRR expects considerable saving in transportation costs by cutting out cars in their normal line of movement. Fabrication of steel and wooden details for freight car equipment can be handled economically at the nearby Altoona Yards; and there is plenty of skilled manpower available.

• **Racing with time**—At the western end of Pennsylvania, the hub of PRR traffic is in Pittsburgh. Last week PRR reported engineering plans complete and bids soon to be asked on its $34-million streamlining of terminal operations at its Conway Yards, 22 mi west of Pittsburgh (ENR Nov. 20, p. 21). The new yard will be one of the largest in the system: 3¼ miles long, 85 tracks wide at the center. It will provide for classifying up to 8,000 cars a day on two "humps" equipped with automatic braking devices to control car



TUNNEL ELIMINATIONS IN EASTERN OHIO cut 24 hours off trips for large cars. Eliminating Tunnel No. 6 (top center), near Fernwood, also improved alignment and eliminated two bridges over Cross Creek.

movement and speed, as well as automatic scales to weigh cars in motion. Little of the present yard facilities will be retained except part of the enginehouse.

The new Conway Yard will be larger than the Enola Yard. With completely modernized Enola in the east and new Conway near the geographical center of the system, freight will be moved, classified and distributed in solid trains to and from terminals with greater speed, efficiency and economy than ever before, and with less intermediate handling. Many train runs will be cut two to twelve hours.

Construction to be completed in about three years includes: $2 million for grading; $13.2 million for track work; $4.2 million for bridges, trestles, and culverts; $.8 million for stations and office buildings; $2.1 million for shops and enginehouses; $4.9 million for car retarders; $1.5 million for signals, communications and transmission; $.6 million for scales; $1.1 million for new stock pens, and $.7 million of miscellaneous items. Track and signal changes and other related work in the area will take another $3 million.

Conway is only the latest addition to a series of PRR projects in the Pittsburgh area. New freight and passenger terminal facilities in the heart of downtown Pittsburgh are costing nearly $32.5 million.

Already in use is a $5.1-million Pittsburgh warehouse facility including two buildings with a total usable floor area of 405,100 sq ft. Side tracks permit loading or unloading of 16 freight cars at Building No. 1 and 30 freight cars at Building No. 2. On the opposite side of the buildings, 25 trucks can be loaded or unloaded at Building No. 1 and 22 trucks at Building No. 2.

Estimated cost of passenger station improvements at Pittsburgh is $27.3 million. By mid-1952 $7.5 million of this had been spent, mainly for yard expansion, respacing and extension eastward of the five through tracks leading to the Eastern Division, wider unobstructed platforms, and added platform space for 41 cars.

Construction is now forging ahead on respacing and extension of nine more tracks, increasing platform capacity for another 42 cars, and a viaduct approach to the Allegheny River Bridge. The whole project includes removal of the old arch-type train shed spanning the original station tracks and platforms, replacing it with a modern continuous cover over all platforms. Extensive interior improvements will be made to the station building by the time work is completed within the next two years.

• **More time saved**—West of Pittsburgh, PRR is now reaping the benefit of a $8.8 million tunnel elimination project on the Panhandle Division in Eastern Ohio. By changes of line and open cuts, six tunnels were completely eliminated and another enlarged in a 45-mile stretch of main line starting just west of Steubenville.

This project cut a full 24 hours out of the running time of cars with high or wide loads, as well as of all the 180,000 box cars that are too large to pass safely through tunnels. Each of these cars formerly had to be switched out of through trains en route and detoured between Pittsburgh and Columbus or Indianapolis via Crestline. The new track alignment also reduces curvature, enabling speedier train movement.

Want more state control on reclamation projects

The West wants more control over reclamation projects and an increased chunk of gasoline tax revenues and the right to disburse it.

Delegates to the Western Governor's Conference at Phoenix, Ariz., last week made these issues clear in strongly worded resolutions demanding that the federal government abandon its dominance in these fields.

Eventual state or local ownership of federally sponsored reimbursable water projects was the goal cited in the governors' reclamation resolution.

But the governors also noted:

• Water rates dictated by the Reclamation Bureau under the so-called utility contracts don't provide much revenue toward amortization of project costs. California's Gov. Earl Warren wanted to know how states eventually could gain title to projects. Michael W. Straus, U. S. Reclamation Commissioner, said it would require trebling rates of water users, and the water users couldn't stand it.

• Water users want assurance of delivery beyond the 40-year limit of contracts that now can be written under reclamation laws.

Concerning gasoline tax revenues, governors called on the federal government to return all such revenues to the states. Ever increasing construction and maintenance costs were cited. The government now returns about two-thirds of gas tax revenues and diverts the rest to non-road purposes.

The governors claimed that the states could administer the funds more economically than the federal government. They also maintained that the states should have the right of collection of gasoline taxes when they see fit, avoiding duplication in collection expense.

However, they believed that the federal government still should shoulder the job of road construction on federally owned lands. (The government still is the major real estate holder in many western states.)

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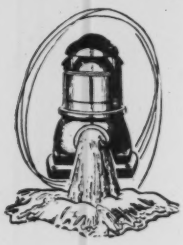

DATA:

- —WELL; Drilled by rotary clay-seal process, 850 feet deep in the Kirkwood stratum; double cased and graveled.
- —CASING; 145 feet of 16" and 747 feet of 12" steel.
- —SCREEN; 61 feet of 6-guage Armco Iron.
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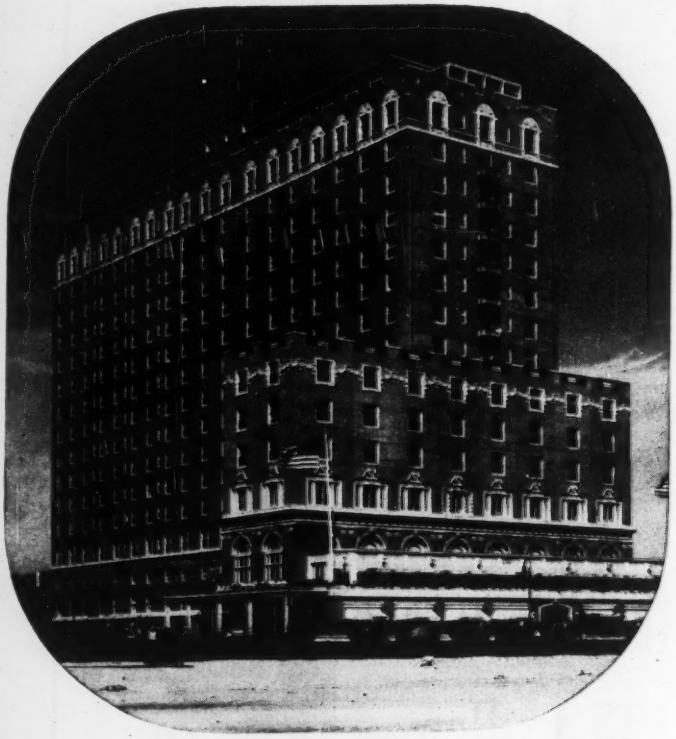

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CISC LOOKS TO ESA. Thomas J. Kalis, co-chairman of CISC, (left) may have to look to Roger Putnam, head of Economic Stabilization Administration, for autonomy.

CISC seeks full autonomy

The Construction Industry Stabilization Commission is insisting on full autonomy now that no public member of the parent Wage Stabilization Board is familiar with construction industry wage problems. A CISC committee made the demand to WSB Chairman Charles C. Killingsworth last week. If WSB is not reconstituted and an answer received this week, CISC will make its appeal directly to Economic Stabilizer Roger L. Putnam. WSB has not been able to function because of the resignation Dec. 6 of its industry members.

CISC has been limited in its authority to the extent that approval of any wage adjustments in excess of the normal ceilings also must have the approval of WSB. CISC members did not object in the beginning because John T. Dunlop, an expert on construction wage practices, was a public member of WSB. After Dunlop resigned, there was no objection because the new WSB Chairman, Archibald Cox, had been CISC chairman and thus was familiar with the construction situation. But Cox's resignation Dec. 4 because of President Truman's approval of the $1.90 daily wage increase for soft coal miners has left the WSB public side without an expert on construction wages. CISC members, therefore, are reluctant to let WSB serve as a sort of court of appeals on their decisions.

But there is another good reason why CISC is determined to stay in business, despite resignations: Construction fought hard for recognition as an industry with special problems under Taft-Hartley and got it with the CISC. The CISC contractor members believe that resigning with WSB industry members would jeopardize the special treatment they have been receiving under the present setup.

There are about a dozen CISC "above-ceiling" decisions at WSB awaiting approval.

The CISC committee which met with Killingsworth included co-chairman Thomas Kalis, public member of the group.

Phoenix trades council in labor law test case

Hearings on the first court test of a fair labor practices law passed by initiative in Arizona Nov. 4 started Dec. 9 at Phoenix.

The new law makes it illegal for a labor union to picket any establishment unless a bona fide dispute over wages or working conditions exists between the employer and a majority of the employees. It also forbids secondary boycotts.

One of the co-authors of the initiative measure—Southwest Cooperative Wholesale—is the complainant.

The co-op sought a petition for a temporary injunction restraining the Phoenix Building and Construction Trades Council from picketing the establishment.

The co-op's feed mill and warehouse were destroyed recently in a $600,000 fire. Rebuilding now is under way on the 12½-acre site, using company employees idled by the fire.

The building trades union promptly applied a picket line.

Co-op officials say the 65 mill employees were used on the construction project rather than to lay them off.

Union officials warned them to discontinue using co-op employees and, when rebuked, established the picket line.

Co-op officials admitted workers on the project were paid $2.25 an hour as contrasted with the union carpenter scale of $2.52.

Changes in wage controls announced

Four actions affecting the handling of wage controls in the construction industry have been announced:

1. Stabilizer Putnam approved Amendment 1 to General Wage Regulation No. 12. This amendment brings under authority of the Construction Industry Stabilization Commission, a branch of the Wage Stabilization Board, the wage adjustments of construction employees engaged in fabricating and repair of materials in shops away from a construction site.

2. CISC issued Amendment No. 3 to CISC Regulation No. 1. It provides that shop employees brought under CISC jurisdiction by the amendment noted above may be paid the pre-approved rates authorized for on-site workers only if pre-approved rates authorized for on-site workers only if there has been an established practice of paying the same wages to shop and on-site workers.

3. WSB issued Resolution No. 12. It pertains to employers not in the building and construction industry who employ manual workers who do both maintenance and construction work. They may pay these workers rates which are pre-approved by CISC for on-site construction workers where there has been an established practice of paying identical rates.

4. CISC issued Amendment No. 4 to CISC Regulation No. 1. This amendment was proposed by WSB last July in Resolution No. 104 (ENR Aug. 7, p. 30). It permits contractors, especially home builders, to continue paying premium wages to key employees or specially qualified workers. However, it must be shown that such premium pay was an established practice of the employer before wage controls came.

Union in contempt of Kentucky court

The AFL International Union of Operating Engineers and its international representative, Arthur Watkins, have been held in contempt of the McCracken County Circuit Court, Paducah, Ky.

The court's action against the union was taken recently as an outgrowth of the $3.25-million lawsuit filed against IUOE by a group of operating engineers who rebelled against IUOE policies and leadership (ENR Dec. 11, p. 30).

After the suit was filed, the court ordered the union to produce numerous records, including financial statements. Watkins, to whom the subpoena was given, declined to comply on the ground that the records weighed "several tons" and "included thousands of documents." He also failed to appear in court, after his attorney "explained my rights."

It was on these grounds that the contempt citation was based.

Circuit Court Judge Holland G. Bryan gave Watkins until Jan. 5 to clear himself of the contempt or go to jail. The judge said he would ask a jury to decide how much the international union should be fined. (The maximum fine is $5,000 and was assessed Dec. 5 against an independent union in Louisville which had violated a court injunction limiting picketing during a strike.)

The contempt hearing involving IUOE had repercussions at the Paducah A-plant project. About 1,000 operating engineers left their jobs at the plant to attend the hearing.

This brief walkout may have violated an agreement between AFL unions and F. H. McGraw Co., prime contractor. But there were reports that the company would ignore the incident.

More trouble in the Paducah area was reported Dec. 5, when AFL boilermakers picketed TVA's $100-million steam plant, which will supply power to the A-plant. About 750 of the 1,500 workers refused to cross the picket line.

The boilermakers' strike is against Babcock & Wilcox, contracting firm which is installing boilers at the steam plant. The boilermakers reportedly were dissatisfied with the firing of one of their members.

Christmas bonus

Any employer may pay any of his employees—without prior Wage Stabilization Board approval—a 1952 Christmas or year-end bonus not exceeding $40 in value even though a lesser bonus or no bonus was paid last year. The same amount was permitted in 1951.

General Wage Regulation 14 authorizes employers who customarily have given larger holiday bonuses to continue their past practices. Special amendments to GWR 14 were required to cover employers who had no established practice of paying bonuses. The bonus may be given in the form of presents other than cash as long as the value does not exceed $40.

County charges unions with unlawful conspiracy

Westchester County Commissioner of Public Works James C. Harding testified last week in New York State Supreme Court that construction in that New York county was delayed two weeks last June by a refusal of suppliers to load materials on county-operated trucks.

Harding's testimony was the result of a suit brought by the county against both the Westchester Federation of Labor and Teamsters (AFL) Local 456. The county, charging the unions with "unlawful conspiracy" that induced suppliers to boycott county construction jobs, is seeking a permanent injunction against interference by the unions. The county already has a temporary injunction against the unions.

• **County**—The county claims that the unions inspired the boycott to force it into an "illegal" contract making the unions sole bargaining agents for county employees. The county says it has no power to enter into such an agreement.

The boycott began June 3 following a policy statement on unions by the County Board of Supervisors. The board said it has definite obligations regarding county employees and these cannot be delegated to others. The board neither recognized nor denied the unions the right to represent county employees.

The county claims that the late John Acropolis, president of both unions at the time of the boycott, ordered all union members not to load county trucks. The board says Acropolis also asked union men not to work for firms contracting with the county.

• **Unions**—The union attorney said that the union had first sought recognition from the County Park Commission as bargaining agent for toll collectors.

The commission, the attorney claimed, told the union that recognition would not be given.

The board statement came after the union warned that it would fight the county if collective bargaining rights were denied the teamsters' union.

The teamsters' local says that it represents municipal employees in Port Chester, New Rochelle, Rye, Mount Vernon and Yonkers.

Technical engineers' union pickets The Dalles Dam job

Crews of the S. A. Healy Co., and Atkinson-Ostrander, working at The Dalles Dam project on the Columbia River, were off the job 2½ hr. Dec. 1, when pickets of AFL Technical Engineers and Architects Union paraded on both sides of the river.

Associated General Contractors, in a statement issued at the Portland office, reported union men on the job went through the picket lines upon being advised of circumstances. AGC declared the picketing was illegal, that the union had no members on the job and did not have contracts with either employer. At The Dalles, M. C. McAllister, business agent for the union, claimed pickets were endeavoring to enforce demands for a contract, higher wages and better working conditions.

Professional engineer

The definition of a "professional engineer" who is exempt from wage and salary controls has been clarified further by the Wage Stabilization Board.

WSB previously described an exempt "professional engineer" as a person with an engineering degree or license or one who possesses "special knowledge" acquired by education and practical experience which enables him to render engineering services.

WSB now adds that recognition will be given to the fact that a worker who performs the same services or fills the same job as other employees who hold an engineering degree or license may qualify as a professional engineer, even though he himself does not have a degree or license.

In general, WSB explains, an engineer who is employed in a professional capacity which makes him exempt from the federal wage-hour law is also exempt from wage and salary controls.

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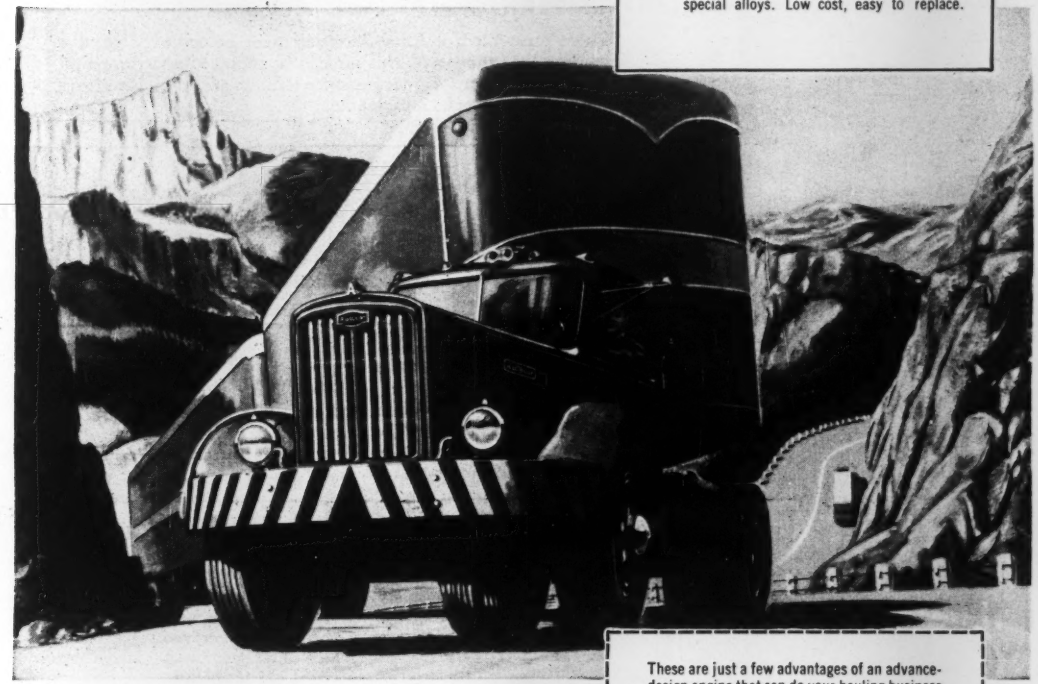

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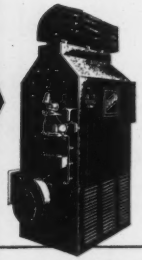

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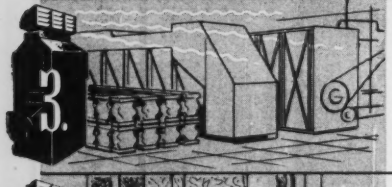

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INDIANA'S NEWEST CLOVERLEAF INTERCHANGE will separate Chicago-bound traffic from traffic in the heavily-traveled Indianapolis Boulevard in Hammond, Ind. (Star Photo)

Indiana looks to future of its roads

When Indiana opened its second section of Tri-State Expressway on the Chicago-Detroit Expressway, on Oct. 13, state officials and Hoosier road-boosters marked the event with appropriate ceremonies. Governor Shricker cut the ribbon, and Samuel C. Hadden, chairman of the state highway commission, delivered the keynote speech.

The size of the project—only 2.5 miles of new four-lane divided pavement, including a cloverleaf grade separation at Indianapolis Blvd.—isn't impressive but its completion is of particular significance. It exemplifies the Indiana State Highway Department's philosophy of building for the future, while taking care of the immediate problems.

For example, this new section of expressway will play a dual role. For the present it helps relieve congestion of Chicago-bound traffic from the East, South and Southeast. And in the future, it will help speed traffic from Indiana's proposed toll highway into the Windy City's loop district.

Getting into and out of Chicago on its southeast side has been a headache for the past quarter century. Traffic on U. S. Highways 12, 20 and 41 had to crawl through the highly industrialized areas of South Chicago, Hammond, East Chicago and Gary, Ind.

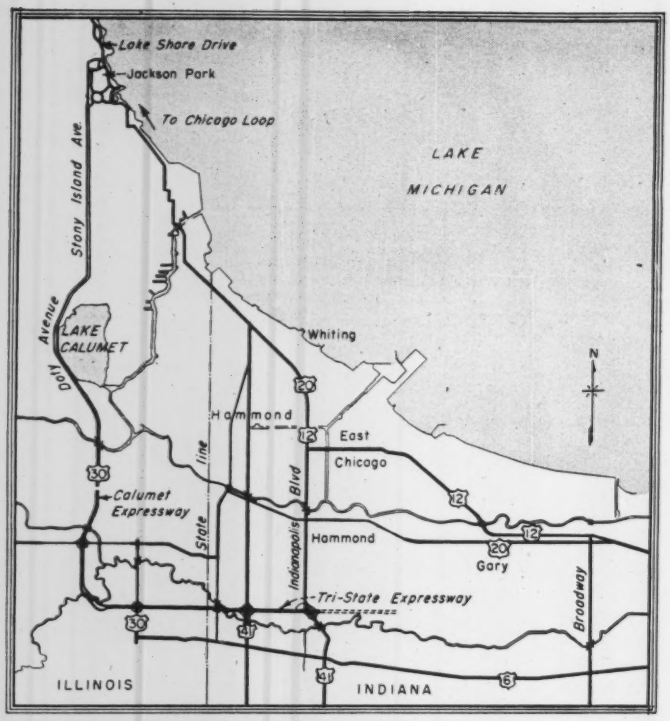
• **Better access to Chicago**—But today the traffic pattern is changing. Chicago-bound traffic on U. S. 12 and 20 can bypass Gary on U. S. 6. This traffic, together with traffic from U. S. Highway 41, flows onto the Tri-State Expressway at the new Indianapolis-Boulevard interchange. From that point, passenger car traffic flows into Chicago's downtown loop area over 27 miles of expressways, divided streets and parkways.

This is the route (see map): 2.5 miles of new 4-lane divided Tri-State Expressway from the Indianapolis Boulevard interchange in Hammond, Ind. to the Illinois-Indiana state line; 8.5 miles of Illinois' Tri-State Expressway and Calumet Expressway (both posted for 60 mph speed) to 130th St.; 3.5 miles of Doty Ave. now being widened to 6-lanes, divided; 4.5 miles of 8-lane Stony Island Ave. to 67th St. At this point traffic makes a short cut through Jackson Park and continues downtown on 8 miles of the Chicago Park District's 6- and 8-lane divided Lake Shore Drive. Trucks have access to the same route, except the Lake Shore Drive.

At present the Tri-State Expressway dead-ends just east of Indianapolis Blvd. The Indiana State Highway Department plans to extend it 7.5 miles on east to Broadway, in Gary, or perhaps a little farther. This probably will take two or three years.

• **Junction with toll highway**—Although the route of the proposed toll highway across northern Indiana has not been located, in all probability its western terminus will be at a junction with the Tri-State Expressway at some point just east of Broadway, in Gary.

For the past several years the Tri-



INDIANA'S TRI-STATE EXPRESSWAY helps Illinois' Calumet Expressway speed traffic to and from Chicago's Loop. When extended to Gary (Ind.) it probably will connect with the western terminus of Indiana's proposed toll highway.

State Expressway was considered a part of the proposed Chicago-Detroit expressway. But with the advent of the toll highway plan linking Chicago with Ohio's toll highway, the Indiana State Highway Department has revised its planning.

Now it appears that the most feasible plan is to build a spur off the toll highway at some point just east of Elkhart up to the Indiana-Michigan state line, to attract traffic from Michigan's U. S. Highway 112. This would give traffic from Detroit fast access to downtown Chicago, over part of Indiana's toll highway.

• Status of the toll highway—The question of the constitutionality of Indiana's Toll Highway Act has now been established by the Indiana Supreme Court. A decision favorable to the turnpike has been handed down. (ENR Nov. 27, p. 25).

The first major step will be for the Toll Highway Commission to engage consulting firms to make two studies. One will be an engineering report on the location, basic design features and estimated cost of construction. The other will be a traffic and earnings report, estimating the traffic that would be developed and the amount of revenue it would produce.

If these two reports, considered together, indicate the project would be self-liquidating, the commission should have little trouble selling bonds for financing the design, construction and purchase of right-of-way.

The exact location of the toll highway will be an engineering problem of considerable magnitude, but its approximate location is pretty well fixed. At its eastern end it will join the western end of Ohio's toll highway at the state line, just east of Angola, Ind.

If its western end joins the highway department's Tri-State Expressway in Gary, the toll highway in all probability will pass just south of LaPorte, swing slightly north passing to the south of South Bend, Mishawaka and Elkhart. From there it probably will roughly parallel U. S. 20, a short distance to the south of it, to its eastern terminus.

To date, about the only opposition to Indiana's proposed toll highway has come from certain motel interests, who fear it will adversely affect their business.

• No rush to get started—Proponents of the toll highway aren't in too much of a hurry to get it started. Both its design and construction will follow along behind Ohio's toll highway.

"This will work to our advantage," they say, "since we can profit by Ohio's experiences in toll highway design and construction, and we don't have to compete with the Buckeye state for engineering talent to make the surveys and designs, or for contractor organizations to build it."

This does not mean, however, that Indiana will intentionally delay any part of its toll highway program—from original surveys to construction contracts. In fact, one ardent booster predicts that dirt will begin to fly within 18 months after removal of all legal barriers to its construction.

• Good construction record—The wheels of progress on the toll highway program are turning slowly, but not so with the state highway department. During the past four years the department awarded contracts for $62-million worth of new highway construction and reconstruction; $19-million worth of bridges; and performed $33-million worth of maintenance.

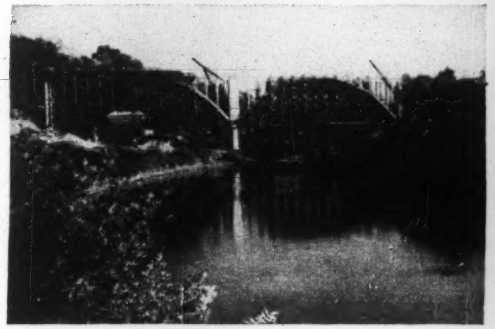
These expenditures represent 250 miles of new highway construction, 730 miles of pavement widening and resurfacing, and 960 miles of resurfacing only.

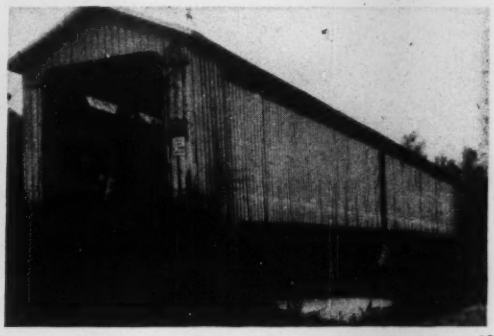
A total of 180 miles of highways were paved or widened with portland-cement concrete, while bituminous concrete was used in new construction or resurfacing of 1,180 miles of pavement. The $19-million worth of bridge contracts include 183 structures, totaling 432 spans.

Another high point of the highway department's activities during the past four years is the installation of traffic signals at dangerous intersections. A total of $1 million has been spent since January, 1949, for installation or modernization of traffic signals at 550 locations. And plans are being made for the installation of an additional 90 signals, at an estimated cost of $300,000.

With this rather impressive record in the background, the highway department is looking to the future in improving its road system to as high a standard as available funds permit. Indiana highways are built on a "pay as you go basis," and the state has no road debt on either its state highway or county road systems. This is a point of great pride in Indiana which, under its constitution, can not be bonded. There is also a statutory

OLD PAVEMENTS are being widened for safety (left) and extra lanes are being added on hills of highways having a large volume of truck traffic. Trucks are required to use the added lane when climbing hills.





OPEN-SPANDREL arch bridge replaces 19th century covered bridge on State Route 42 east of Terre Haute. The 80-year-old bridge will be match-marked, dismantled and moved to a state park for posterity.

ban against bonding the counties and there are no so-called township roads.

• **To build test pavements**—The State Highway Department has set out to learn more about different types of pavement through controlled field tests. To that end, contracts have been awarded and test sections of the two types of pavement will be built next year on U. S. Highway 31, just north of Columbus. Details of this undertaking will be described in a subsequent issue of ENR.

Indiana is dead set against the three-lane highway, from a safety standpoint, but it believes in the value of a third lane for trucks on ascending grades of heavily traveled truck routes.

Most recent example of this type of construction is on a 19-mile stretch of new concrete highway on State Route 37 between Martinsville and Bloomington. A third 11-ft lane for trucks was added to the 22-ft pavement on ascending grades of 3% or steeper.

• **Road building revenues**—Indiana receives about $10.5 million of federal aid each year, and collects $36.5 million as its share of the motor fuel and vehicle taxes. The state has had a 4¢ gasoline tax since 1929. Revenues from the combined motor vehicle fund are divided 53% to the state highway department, 32% to the counties and 15% to the cities.

• **Manpower and money needed**—Like several other states, Indiana is short on engineering manpower. But worse yet, it is having a struggle to match federal aid funds.

One reason why the highway department is slowly getting behind in taking up federal allotments—although none have actually been lost as yet—is its inability to get federal approval on resurfacing certain rural highways and city streets.

The Bureau of Public Roads, in some instances, refuses to participate in resurfacing existing rural pavements on the ground that they are below the bureau's standards in grade and alignment.

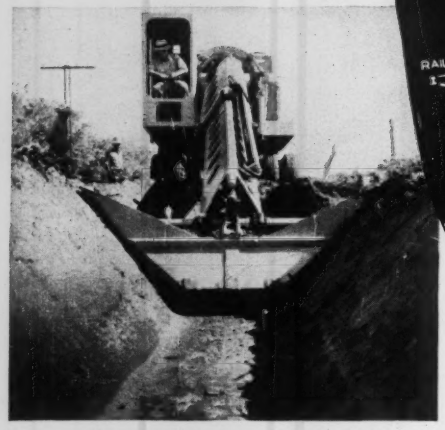
At the same time experience of the highway department indicates such realignment is not always necessary to provide safe and satisfactory service. The upshot of it is that the highway department uses some of its matching funds for the resurfacing, without federal help.

The same thing applies in resurfacing city streets, where the BPR won't participate with urban federal aid unless an extra lane is provided, while the state deems it impracticable to do so in many cases.

Indiana's state highway department is governed by a full-time, bipartisan commission of four members, consisting of Samuel C. Hadden, chairman, Albert J. Wedeking, Thomas B. McDonald and Jasper Jones.

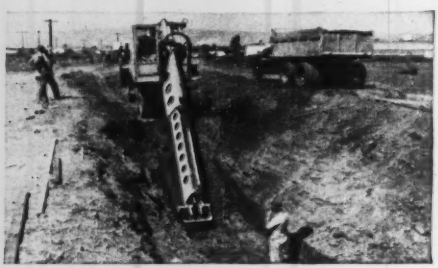
R. H. Bower is chief engineer; J. R. Cooper, bridge engineer; J. T. Hallett, road engineer; and E. B. Lockridge, superintendent of maintenance. In the bridge department, J. V. Smythe is engineer of design and O. W. Eusey is engineer of construction, assisted by Nelson Steinkamp. In the road department, W. H. Behrens is in charge of design, and F. L. Ashbaucher heads construction. His three traveling assistants are: R. L. Roath, F. E. Bernoske, and Charles H. Hunnell.

digging ditches TO BLUEPRINT SPECIFICATIONS

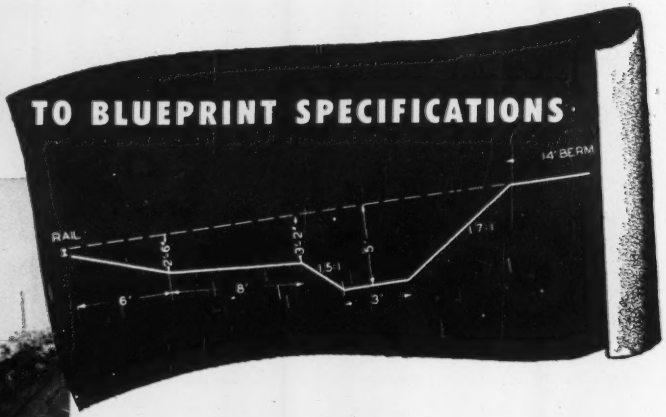


Using special bucket built by owner, Gradall digs and trims irrigation ditch, eliminating hand finishing.

Along busy highway, Gradall accurately cleans slope, digs ditch, and loads spoil, all in one operation.



Gradall digs two-level ditch — tilting arm-action boom permits chamfering slope to desired angle.



NO MATTER WHAT TYPE DITCH IT IS, the Gradall will dig it with the accuracy of hand labor—but at much less cost!

Gradall has proved itself a time and labor saver on many different types of ditching jobs—following the special contours of ditches along railroad right-of-ways, along highways, in extensive irrigation projects—anywhere precision work is required.

By power hydraulics, the Gradall exerts a positive down pressure, rather than depending upon the weight of the bucket for its cutting action. And its "arm-action" boom twists and turns to cut slopes at any desired angle —to work easily around obstacles. Its mount permits a 360° swing to load or waste spoil. And many standard and special tools can be easily interchanged in a matter of minutes.

Contractors, officials of utilities and municipalities, and highway men alike are enthusiastic over Gradall's clean, finished work—done exactly to "specs". But see for yourself—Contact your Gradall Distributor for a field demonstration.

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YOU CAN PRODUCE IT BETTER, FASTER, FOR LESS WITH WARNER & SWASEY MACHINE TOOLS, TEXTILE MACHINERY, CONSTRUCTION MACHINERY

NEWLY OPENED TACONITE MINE near Babbitt, Minn., is jet-pierced for blasting (at right), while 6-cu yd electric shovel (at left) will load trucks for short haul to the Reserve Mining Company's new 300,000-ton-per-year processing plant. This deposit, 9-miles long and ½-mile wide is expected to yield 1.5 billion tons of magnetic taconite.

Taconite calls for large-scale construction

(Second article)

TWO BIG CONSTRUCTION PROJECTS are being built on the Mesabi Iron Range by the Reserve Mining Co.—owned jointly by Republic Steel Corp. and Armco Steel Corp. The objective: To produce taconite concentrates—in the form of walnut-size pellets containing over 60% iron—by the end of 1955 at an annual rate of 2,500,000 tons per year. Two years later annual production should reach a total of 3,750,000 tons.

One project is located at Babbitt, Minn. on the northeastern end of the Mesabi. The other—called the "Lakeside" project—is on the north shore of Lake Superior, about 55 miles northeast of Duluth.

Reserve's long-range plans contemplate production of 10,000,000 tons of taconite concentrates per year. The company is spending $160 million on plant, railroad, harbor and townsite construction in its initial 3,750,000 ton-per-year program (ENR Dec. 11, p. 40).

Taconite rock of less than 25% iron content will be mined at Reserve's 3,000-acre deposit near Babbitt. Preliminary crushing will be done there, and the material will be shipped to Lakeside by rail for further reduction and pelletizing.

Major construction now under way at Lakeside includes: Foundation excavation for the concentrating plant; two 1,800-ft breakwaters; and the first 20 miles of railroad between the mine and the processing plant. Next year, construction will be started on a steam power plant to furnish electric power for both Lakeside and Babbitt.

At Babbitt, a 300,000-ton-per-year processing plant has been put in operation for crushing, magnetic separation and pelletizing the taconite. This isn't a pilot plant—it's a complete plant for the commercial production of taconite concentrates on a much smaller scale than the commercial plant which is now being built at Lakeside.

Industrial water for the Babbitt plant is obtained from Birch Lake, through 2 miles of 20-in. line, having a capacity of 4,000 gpm. Two-thirds of the water requirements will be reclaimed at the plant.

• **Old mill remodeled**—The small commercial plant at Babbitt is housed in remodeled buildings of an old taconite processing plant completed in 1922 by D. C. Jackling, a noted mining engineer employed by the Mesabi Iron Co., and his associates. It closed down in 1924 since it was unable to compete, costwise, with direct shipping ores at that time.

The McGraw Construction Co., Middletown, Ohio, had the contract for remodeling the old mill buildings, constructing some new ones, and installing the machinery for the small processing plant.

Surprisingly, they found the 30-year old steel frame buildings were in good enough condition to be used, although they had had little maintenance through the years. This is attributed to the slow corrosive action of the low-humidity climate in that area.

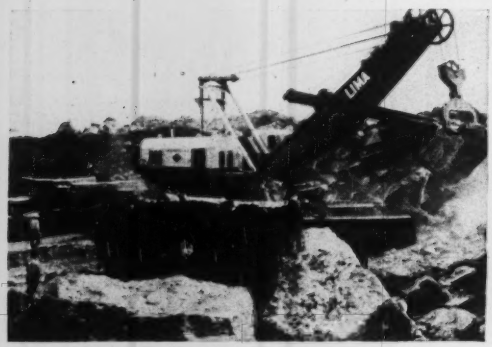
Much of the old machinery used by Mr. Jackling obviously was outdated. It was scrapped, and especially designed new crushing, magnetic-separation and pelletizing machinery was installed.

• **Taconite mine opened**—In opening its taconite mine, Reserve has stripped about 350,000 cu yd of overburden from an area 4,000 ft long by 300 ft wide. Depth of overburden averages 8 ft. The original cut of taconite will be nearly 300 ft wide, with a 35 ft vertical working face.

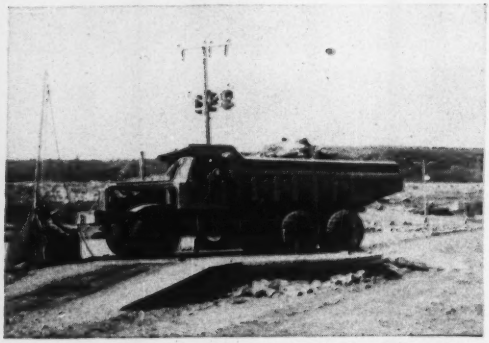
Holes for blasting are pierced to a depth of 40 ft; allowing 5 ft for breakage and leveling up the bottom of the cut. The taconite is loaded by a 6-cu yd electric shovel with a 5-cu yd dipper, into 22-cu yd end-dump trucks for hauling to the processing plant, about 2 miles from the mine. Subsequently this haulage will be by rail.

• **World's largest crusher**—When Reserve starts commercial production in

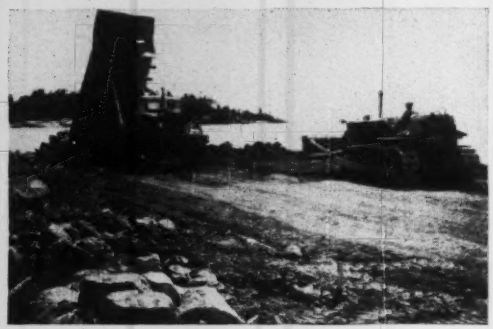
BREAKWATER CONSTRUCTION—A big job for big equipment:



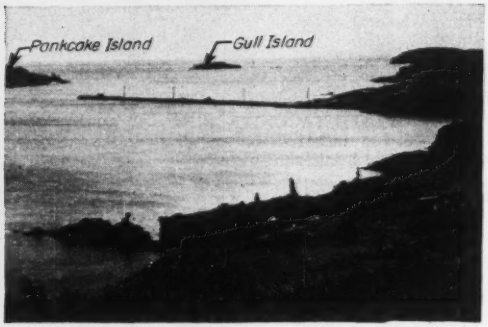
TRUCKS, LOADED by 6-cu yd diesel shovels, are . . .



TURNED 180-deg by turntable on breakwater, and . . .



BACKED UP to end-dump their 30-ton loads at end of . . .



BREAKWATER stretching to Pancake Island.

its big plant in 1955 it will be operating what is believed to be the world's largest crusher.

One of four primary crushers to be erected at Babbitt, this mammoth crusher will have a 60-in. receiving opening and a 109-in. maximum diameter crushing cone. It will weigh more than 1,250,000 lbs and be capable of crushing 3,500 tons of the tough taconite per hour.

Two 500-hp electric motors will drive the big crusher, which will take over two years to build. Three smaller, secondary crushers to be erected at Babbitt will have 30-in. receiving openings.

• **Moved a highway**—Contracts for construction at the Lakeside project were awarded in September, 1951. One of the first jobs was to move a highway.

Minnesota's U. S. 61 shoreline highway cut right through the industrial area. It wasn't feasible to locate the plant to miss completely the highway so Reserve did the next best thing, relocated the highway a few hundred feet farther away from the lake, leaving sufficient area between it and the lake for the industrial buildings.

Taconite rock, crushed to 4-in. size at Babbitt, will be delivered to a car-dumper at the top of the bluff opposite the industrial area at the lake. It will be discharged into a 165-ft deep shaft and will pass under U. S. Highway 61.

Secondary crushers, rod mills and ball mills will crush and grind the taconite nearly as fine as cement. The fine particles of iron will be separated magnetically and processed into pellets for lake shipment to Armco and Republic steel mills.

• **Construction camp**—The construction camp at the Lakeside project is no ordinary camp. Its dormitories, office buildings, mess hall and recreation building are built for a 25-year life.

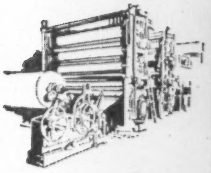
The main dining room seats 350 and its meals rate a Duncan Hines endorsement. This reflects the philosophy of Verne Robertson, project manager for the contractors. "Good food and comfortable lodging," says he, "are part of the duty that a contractor owes his men." Room and board cost $3 per day.

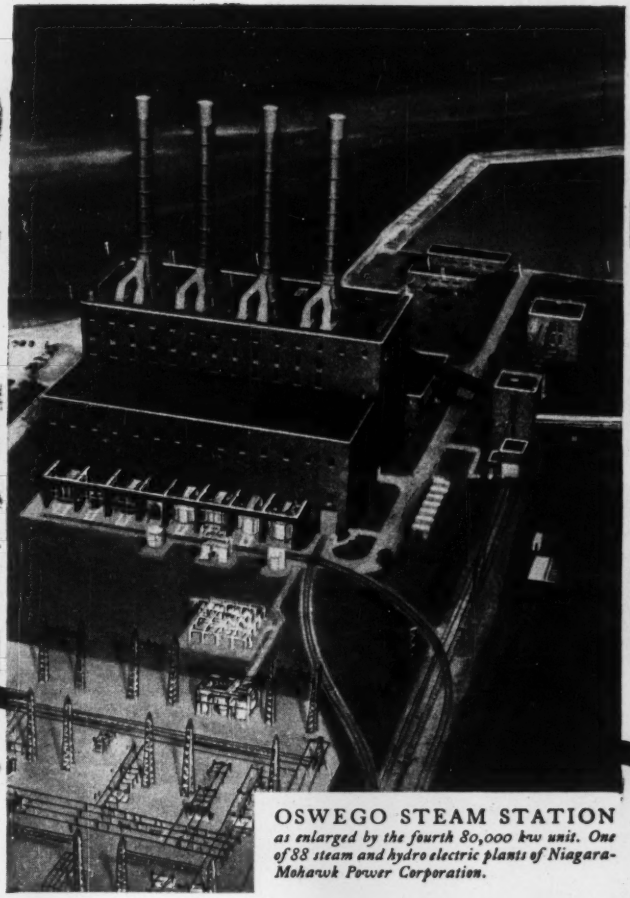
There are at present four 80-man dormitories for workmen, and a 90-man dormitory for the contractor's staff and some of Reserve's engineering personnel.

In addition, a camp was completed this year for 60 trailers, while 30 cottages—of assorted sizes occupying lake frontage purchased by Reserve—were moved to the Lakeside project to house workmen. Machine shops, repair shops and the electric generating plant are steel buildings.

• **Big harbor and dock**—One important part of Reserve's project at Lakeside will be a 30-ft minimum depth harbor 6,000 ft long by 1,200 ft wide, and a 3,000-ft dock for loading out the taconite pellets, and receiving coal and supplies.

Keystone of the harbor construction is Pancake Island, lying 1,800 ft off shore. An 800,000-cu yd breakwater is being built from the shore out to the island, enclosing the east end of the harbor. It will be completed this fall. Later, a breakwater may be extended about 400 ft out from the other side of the island, parallel to the shore. Similar construc-





OSWEGO STEAM STATION
as enlarged by the fourth 80,000 kw unit. One of 88 steam and hydro electric plants of Niagara-Mohawk Power Corporation.

PRIVATE ENTERPRISE *In Action...*

The Niagara-Mohawk Power Corporation has 7000 circuit-miles of transmission lines and 85,000 conductor-miles of distribution lines in upper New York state. Its entire system has a rated capacity of 2,186,451 kw with 600,000 kw now under construction.

A current example of their enterprise is the Oswego Steam station, designed by their engineering department with construction supervision by Stone & Webster Engineering Corporation.

The benefits of competent business management of a privately-owned utility are again demonstrated by the Niagara-Mohawk system.

STONE & WEBSTER ENGINEERING CORPORATION

A SUBSIDIARY *of* STONE & WEBSTER, INC.

RAILROAD CONSTRUCTION—A muddy operation at times:

DRY CUTS went fast with shovel and truck, but . . .

SOGGY FILLS had to be side-drained, to support . . .

HEAVY-DUTY 140-lb track for carrying 90-ton ore cars from mine to processing plant (Zweifel Nimmo photo).

tion is just starting on the west breakwater at the other end of the harbor. It will extend from shore to Gull Island. The breakwater now under construction will reach a maximum depth of 110 ft below lake level. It will be 50 ft wide at water surface and 325 ft wide at the deepest point. Top of breakwater will be about 14 ft above average lake level.

• **Breakwater construction**—From a heavy construction standpoint, building the breakwater is one of the most interesting operations at Lakeside. The rock being used in the breakwater varies from a hard, dark colored "Gabbro" to a glittering "Anorthosite." It is being blasted off the face of a rock cliff, to form a series of terraces on which the pelletizing plant will be built.

The size of rocks placed in the breakwater is limited only by the capacity of a 6-cu yd shovel to handle them, and 22- and 30-cu yd end-dump trucks to transport them. Some of the larger stones weigh from 12 to 14 tons each.

Wagon-drill holes for blasting are spaced 7-ft to 8-ft each way. Production averages 1 cu yd of rock per ¾ lb of 60% strength powder.

• **Turntable saves time**—In starting the breakwater, the big trucks turned around on shore and backed out to end-dump their loads. After the breakwater had inched its way a few hundred feet toward Pancake Island, this turning and backing became too time consuming.

Consequently, the contractor installed a turntable out near the end of the partly completed breakwater. This permits the trucks to be driven forward out on the breakwater, turned around by the turntable and backed up only a short distance to dump their loads. The savings in time—considering all the loading and hauling equipment involved—will go a long way toward paying the cost of the turntable.

• **Railroad construction**—Construction is being pushed this year on the 20 miles of standard-gage railroad between the Lakeside project and a junction with the Wales Branch of the Duluth, Missabe and Iron Range Railway. Grading work was virtually completed by Oct. 1, and the 20 miles of track are expected to be laid this year. Track-laying, with 140-lb. rails was held up three months due to the steel strikes last summer.

Completion of this 20 mi. length of railroad is important in the project

timetable. It will provide rail service for the industrial construction at Lakeside next year for the shipment of both construction equipment and materials. To date, the contractor has had to truck everything to Lakeside.

Carving this 47 miles of railroad line out of the rugged Minnesota terrain is no easy task. It involves an estimated 3,500,000 cu yd of excavation and nearly 2,000,000 cu. yd of borrow to fill in muskeg bogs and make the embankment. Cuts reach a maximum depth of 25 ft, and embankments a height of 45 ft.

• **Many curves and grades**—It won't be the straightest railroad, nor the flattest one. A total of 47 curves—6 of which are the maximum allowable of 3 deg—have an aggregate length of 16.5 miles. The entire line will have a total rise of 1,097 ft, and a total fall of 358 ft.

Eastbound, loaded trains will operate against a maximum grade of 0.5%, and westbound empties, against a 1.5% grade maximum. This grade differential will make motive power requirements for the diesel engines about equal in both directions. Ore trains will contain up to 100 cars, carrying 90 tons each.

• **Remove muskeg this winter**—Freezing weather this winter will be used to good advantage on part of the remaining 27 miles of railroad construction. While the ground is frozen big draglines, shovels and trucks will excavate an estimated 500,000 cu yd of muskeg along the right-of-way—an operation that goes much faster in freezing weather. In some areas the muskeg will run 25 ft in depth, but the majority averages 4 ft deep.

Other road pioneering work—such as clearing right-of-way and distributing drainage pipe culverts—will also be done this winter while the ground is frozen. The entire 47-mile railroad will be completed by the time the processing plant begins operation in 1955. Railroad construction this year has been heavy excavation, requiring powerful earthmoving equipment. Contrary to expectations, in that rocky country, there hasn't been much rock excavation needed to make the cuts.

• **Mud was a big problem**—Excessive rains and a high groundwater table, however, added to the contractors' woes. Cuts had to be side-drained and pumped continually to keep equipment from becoming mired.

Borrow material that is predominantly clay makes good embankment, but some saturated silty material retains substantial amounts of water long after being placed in fills.

Six railroad bridges are being built this year and next. Four are river crossings, and one each will carry the new railroad over an existing railroad and a highway.

Total contractor payroll on the Lakeside project reached a maximum of nearly 1,200 workmen this year. The contractors have about $3,000,000 worth of equipment on the job at the present time.

It includes such major items as 60 bottom-dump and end-dump trucks of 10- to 32-cu yd (struck measure) capacity; one 6-cu yd shovel; 12 shovels and draglines of 2- to 4-cu yd size; twelve ¾- and 1-cu yd shovels; 52 bulldozers; 20 air compressors and 15 wagon drills. Two 448-kw diesel generators furnish electric power for the construction camp and shops.

• **Lakeside contractors**—Hunkin, Arundel and Dixon are the contractors on all construction programmed to date on the Lakeside project. This includes the crushing, separation and concentration plants; breakwaters, harbors and loading dock; steam power plant; and the 47-mile railroad from Lakeside to Babbitt.

Test road closed for winter months

Operation of trucks over the test pavements built last summer at Malad, Idaho, was stopped on Nov. 27 and will not be resumed until frost is out of the ground in the spring. Instruments buried in the pavement showed that the subgrade was freezing, which was the indicator set for determining when test runs should stop this fall.

The test road at Malad was built under the direction of an advisory committee set up by the Western Association of State Highway Officials (ENR July 3, p. 36). Participating in the cost, in addition to the state highway departments of 11 western states and the Bureau of Public Roards, are truck and trailer manufacturers and several oil companies. The work is conducted by the Highway Research Board, with Wm. N. Carey, Jr., in charge.

Pavement sections are all of the flexible type, bituminous construction, and range in thickness from 6 in. to 22 in. Single-axle loads are 18,000 lb and 22,400 lb, and tanden-axle loads are 32,000 lb and 40,000 lb. Studies are being made of deflections and pavement behavior under repeated loads.

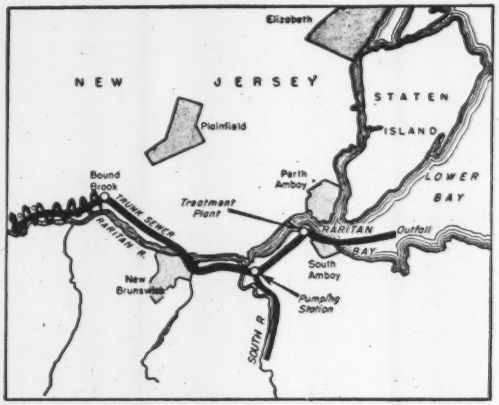
At the time the test runs stopped, 17,000 applications of axle loads had been made on each section. The trucks operated for two shifts of 9 hours and 10 minutes each, daily, six days a week. When operations are resumed in the spring they will be continued until 200,000 runs on each have been made.

As had been anticipated by the designers of the test sections, a few of the 6-in. thick sections have shown some distress under the 17,000 axle loads applied to date. Except for three small isolated areas where small depressions of the surface were noted, to date, no effect of the traffic on any of the thicker test sections is apparent. All failed areas have been repaired in accordance with normal maintenance practices.

TWO TEST LOOPS for the study of flexible-type pavements were built on the line of a projected highway. Test pavements all are on the straight sections of highway.

ESTIMATE OF ANNUAL SERVICE CHARGES

Municipal or Other Corporation	Estimated Annual Service Charge
Borough of Middlesex	$27,600
Borough of Dunellen, City of Plainfield and Borough of North Plainfield	98,400
City of New Brunswick	192,900
Township of North Brunswick	22,500
Borough of Highland Park	31,800
Township of Raritan	54,700
Borough of Metuchen	28,200
Borough of South River	38,600
Borough of Sayreville	26,400
Township of Woodbridge	30,400
Borough of Bound Brook	28,700
Borough of South Bound Brook	11,000
~~Borough of Somerville~~	~~47,900~~
~~Borough of Raritan~~	~~97,800~~
~~Borough of Manville~~	~~88,000~~
~~American Cyanamid Company~~	~~207,900~~
~~Johns Manville Corporation~~	~~79,500~~
~~The Rubberoid Company~~	~~1,300~~
~~Diehl Manufacturing Company~~	~~2,600~~
~~The Sherwin-Williams Company~~	~~2,700~~
Union Carbide & Carbon Corp.	15,500
~~E. I. Du Pont De Nemours & Co.~~	~~71,900~~
Anheuser-Busch, Inc.	41,100
Peter J. Schweitzer, Inc.	58,600
Benzol Products Company	5,700
Heyden Chemical Corp.	20,500
National Lead Company	79,500
Hercules Power Company	97,600
~~Pabco Products, Inc.~~	~~20,000~~
Total	~~$1,121,800~~ $909,700



NEW LIST-NEW PROJECT—When the plan of Middlesex County Sewerage Authority for complete clean-up of the Raritan River failed to attract complete participation, deletions above and left had to be made. The trunk sewer will now extend only to Bound Brook. Estimates of annual service charges remain the same. (The above map and listing, revised for this use, appeared in ENR's original article last May.)

New sewer service contracts drawn for revised Raritan Valley trunk line

CONTRACTS WENT OUT Nov. 25 to 21 communities and industries eligible for participation in the refigured plan of Middlesex County Sewerage Authority to clean up New Jersey's Raritan River. Their ratification finally would put the authority in business.

Basically, they are the same contracts that went last spring to the entire Raritan Valley (ENR May 29, p. 58). But because a number of potential participants in the valley-wide scheme chose not to go along, a refigured project is now being contracted for: a $22½-million trunk sewer and treatment plant, instead of the original $30 million worth. The up-river group that turned down participation has formed a Somerset County Citizens Committee on Water Supply and Pollution and has engaged consultants in a separate clean-streams effort (ENR Oct. 16, p. 26).

Revisions made in the original contract put voluntarily accepted new restraints on the authority and add safeguards to protect best interests of all parties.

The new contract provides:

If construction costs, actual bids, on the estimated $22½-million project exceed $23,312,500, any participant may withdraw. The authority will submit plans and specifications to the New Jersey State Department of Health for certification that they will meet requirements for the next 25 years. Effluent into Raritan Bay must meet standards raised by the state last May 2 above limits imposed by the Interstate Sanitation Commission of New Jersey, New York and Connecticut.

Municipalities abandoning treatment plants will be reimbursed for the unused portion of the useful lives of the plants. This payment will be made within 60 days.

A provision affirms that the authority in issuing bonds, notes or other obligations shall not pledge the faith or credit of any participating municipality or industry. Such obligations are the sole responsibility of the authority.

As indicated in the above tabulation, estimated annual charges made against participants have not changed from the original project. They remain as before, based on scaled charges per million gallons of flow, per ton of BOD, per ton of suspended solids, and per hundred-weight of chlorine demand. The complete schedule of rates appeared in ENR's May 29 article referred to above.

No industry signing the new contract can be required to put all of its effluent into the system. Cooling water and other non-pollutants can be discharged directly to the river, if they violate no health standard.

All disputes between the authority and a participant can go to arbitration, then to the courts. The right of appeal is provided for in the contract.

The authority will contract with a new industry within a participating municipality only with specific permission of that municipality. This will allow the municipality to judge practicability and desirability of connecting the industry to its collection system.

Restraint put on the authority by the new contract limits its reserve fund to 10% for meeting deficits. Setting up of further reserves will require consent of 51% of the participants.

Engineering consultants to MCSA on the project have been Metcalf & Eddy, Elson T. Killam, of Short Hills, N. J., and Charles J. Kupper, of New Market, N. J.

It was estimated that for the entire original project design would take 8 months and construction another 18—once signed contracts assured bond financing. That estimate still stands.

The original 27-mile trunk project has been diminished in refiguring for fewer participants to a 21-mile line, and a 70-mgd primary plant replaces the original 95 mgd. The 4½-mile branch along South River remains a part of the project although its principal potential contributor (duPont) chose to treat its wastes independently. New users are expected to make it necessary.

PROPOSED TREATMENT

Industrial waste concentrations preclude biological treatment. Chemicals in the wastes will foster clarification during retention. Difficult sludge, requiring ocean disposal, will result. Some 35% BOD and 75-85% suspended solids will be removed. Effluent will be disinfected and diffused into the bay.

PROSPERITY in the USA: Who Has It?

How prosperous *are* the people of the United States?

The previous editorial in this series answered this question for the average American. His prosperity has increased only slightly in recent years.

But the average tells only a part, and in many ways not the most important part of the story. Which individuals and groups have prospered more, which less? (The average, the result of a statistical calculation rather than a creation of flesh and blood, tells nothing about that.)

The purpose of this message is solely to get at the facts on this question of how prosperity is distributed. This is not easy. In spite of the crucial importance of the subject, the available information is limited. Even so it is possible to provide a rough answer to the question, "Who has the prosperity?"

We Have Had a Revolution

The distribution of income in the United States has changed so greatly in the past twenty years that Arthur F. Burns, Research Director of the National Bureau of Economic Research, world renowned for its impartiality and technical competence, calls it "one of the great social revolutions of history." A part of this revolution is portrayed by the following table which shows that individual incomes are both much larger and much more evenly distributed than they were twenty years ago. Clearly, a large new middle-class has been created.

DISTRIBUTION OF REAL INCOME

Dollars of Income*	Per Cent of Families in Each Income Group	
	1929	*1951*
Under 1,000	17%	13%
1,000 – 2,000	24	15
2,000 – 3,000	24	18
3,000 – 4,000	14	18
4,000 – 5,000	6	15
5,000 – 7,500	9	14
7,500 and over	6	7
	100%	100%

*Adjusted for price changes to give the dollar its 1951 purchasing power.

Some light on why this income revolution has taken place can be found by tracing incomes to their source. Since 1929, for instance, employees have clearly made the biggest gains in total income. This can be seen in the next table. People who own their own businesses have done second best. Farmers, who are often thought to be doing handsomely indeed, have been outstripped in the income race by employees and businessmen. People whose incomes depend upon pensions, insurance policies, and other relatively fixed returns such as rent, interest and dividends have lagged far behind.

HOW REAL INCOME HAS CHANGED*

Types of Income	Percentage Change 1929 to 1951
Wages & salaries of employees.	+123%
Income of professional men & unincorporated business	+108
Farm operators' income	+56
Rental income	+1
Dividends	+2
Interest	−35

*In this and the previous table account is taken of changes in the cost of living. But adjustment for the changing tax load was not possible, as it is in the computations which follow.

The Biggest Gains

Employees have made the biggest gains in income, but the term "employees" covers a wide assortment of people—from the presidents of the biggest corporations to factory sweepers. How have different groups of employees prospered? Some indication is provided by results of a survey of salaries in 41 corporations made by Arch Patton of McKinsey and Company and recently summarized in the *Harvard Business Review*. This survey showed that between 1939 and 1950, after adjustment both for higher living costs and for higher taxes, factory and office employees made modest gains in income while management personnel suffered losses ranging from 40% to 60%.

While factory and office workers generally have made greater income gains than others, their gains have varied greatly from industry to industry. During the past five years, for example, steel workers' take-home pay (adjusted for both taxes and price changes) has increased by 22%, that of textile workers 9%, employees of general merchandise stores 4%, and that of laundry workers not at all.

What About Organization?

How have organized workers fared compared to unorganized workers? There is no round-up of facts that makes possible a direct comparison between the two. Such evidence as there is shows it is indeed an open question whether union members have done any better than others. Steel workers, for instance, who are strongly unionized are among the highly paid manufacturing workers. Farm workers are generally not unionized, and they work in one of the most competitive industries in America.

But farm workers have made income gains which far surpass those of steel workers. Real wages of farm workers increased 2½ times more than those in the steel industry between 1939 and 1952. This fact may prove nothing more than that, in a period of inflation and manpower shortage, the less skilled workers whose incomes are ordinarily low make the biggest percentage gain in income. Further support for this conclusion is found in the construction industry where real wages of unskilled labor increased 37% between 1939 and 1952, while those of skilled labor increased only 4%.

Why Most Incomes Are Higher

Prosperity, who has it? We may conclude that workers have been getting much more of it lately than managers or property owners, that unskilled wage and salary earners have made the largest gains, and that income generally is much more evenly distributed.

Where has the money come from to raise low bracket incomes? It has come partly from an increase in the total national income, but partly also from cutting down the share received by people in the highest income brackets. While the top 5% received 33.5% of the income after taxes in 1929, their share of income has now been cut about in half. For every $11 of increase in income to the lower 95% of income receivers, about $7 has come from increased production, and about $4 by taking that amount from the top 5%.

Top bracket incomes have now been cut so deeply that the possibilities of increasing the income of the rest of the people by "soaking the rich" have largely disappeared. Indeed, if all of the income after taxes of everyone earning over $25,000 in 1951 was taken away and redistributed among the remaining Americans, each person would receive only about $65.

The significance of this revolution in income distribution is clear. It is that there is only one way by which the great mass of us Americans can continue to increase our individual prosperity. This is by earning the increase through more and more efficient production. In plotting the economic course of the U.S.A. this fact is of decisive consequence.

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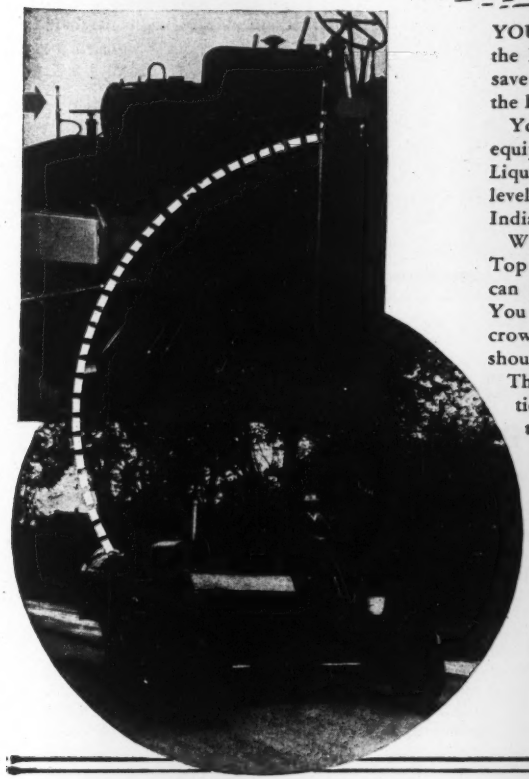
What are you going to do



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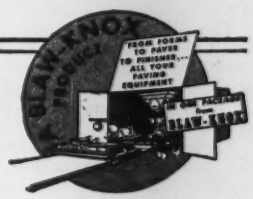


MAIN BUILDING of Denver's proposed commercial center—which has not yet been named. The 20-story skyscraper will dominate the $15-million center.

Commercial center planned for Denver to have 20-story main building

Construction on Denver's first skyscraper—a 20-story glass and aluminum building which will dominate a $15-million office, retail and transportation center—is scheduled to get under way next spring.

The project, similar in concept to New York's Rockefeller Center—is slated for completion late in 1954. Two smaller structures will adjoin the main building. All three will be planned as a unit, being connected by landscaped areas and walks in the manner of Rockefeller Center.

The site of the center is opposite the famous Brown Palace Hotel in downtown Denver. The project will represent the most important change in Denver's skyline in more than a quarter-century.

Coincidentally with construction of the 20-story structure, a 16-story office building financed by Texas oil interests will be going up nearby. The two structures may go far to relieve the shortage of desirable office space in Denver—a situation that has forced major industries requiring large office areas to locate in other cities in the Rocky Mountain area.

• **Main building**—Dominating two smaller but related buildings set in a planted area will be the 20-story building. The air-conditioned office building will stand free on its aluminum-faced steel columns, providing a glass-enclosed concourse surrounding the elevator core. The center later will be given a name appropriate to its location, its tenants and its intended function as a commercial center.

The new center will embody all modern concepts of design and land use. The 20-story office building will cover less than 25% of the ground area. The buildings will be so placed as to give maximum light, air and vista, not only for the center itself but for all surrounding properties. Inside parking for about 400 automobiles will be provided.

The center will occupy a frontage of 300 ft on two streets, and it will cover an entire blockfront of 266 ft. The site adjoins the Sears Roebuck Building, which will be expanded by the addition of two floors. Three floors in this altered structure will be used for parking, cars entering at grade level and ascending to the new third and fourth floors by ramp. Direct access from this building to the main office building will be provided.

The Sears Roebuck Building will be completely modernized, its south side becoming a band of glass facing inward on a planted arcade lying between it and the nearby new office building.

• **Rental space**—The building is designed to appeal particularly to tenants who will occupy entire floors, although tenants requiring less space will be accommodated. Each floor will contain 19,300 gross sq ft, or a total of about 400,000 sq ft in the building. There will be approximately 17,000 sq ft of net rentable space per floor, thus providing an efficiency ratio of 88%, which is believed to be one of the highest ratios of that kind in the country.

The building will be served by eight high-speed elevators: a bank of four "high rise" elevators with a speed of 800 fpm and a bank of "low rise" elevators which terminate at the 15th floor.

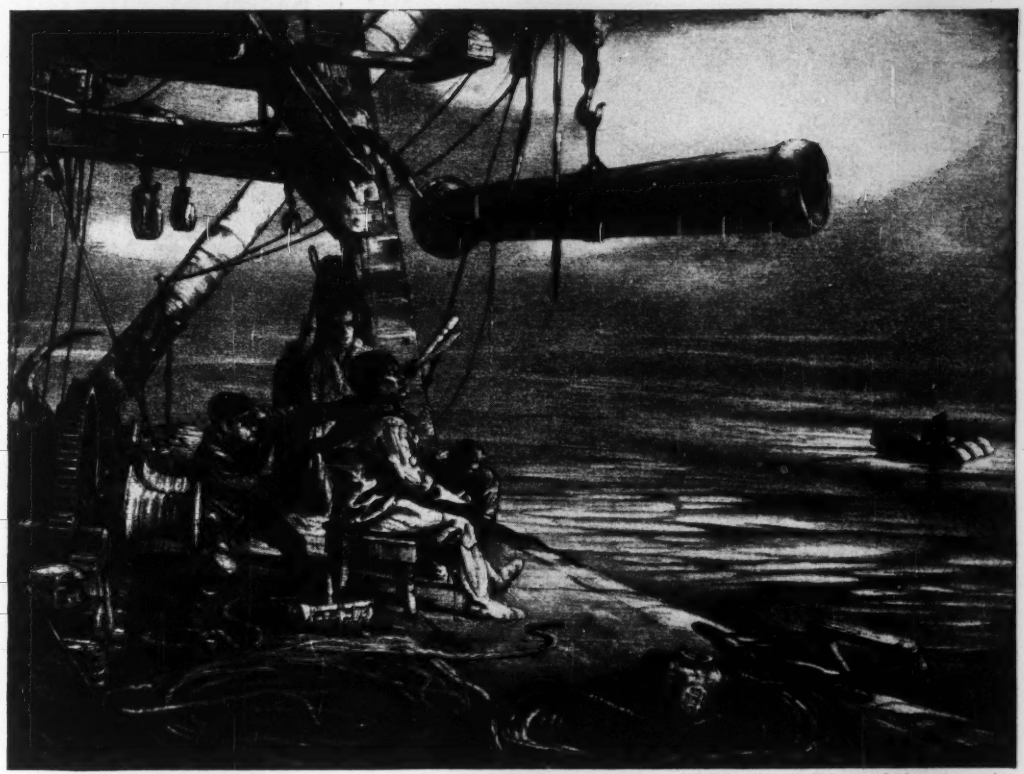
An airlines terminal, which will be on three levels, will take advantage of the 11 ft difference in grade between two streets.

The entrance is to be at the street level through a glass-enclosed office building concourse, which provides substantial space for specialty shops on both sides, and across a walk into the dining section, which faces inward on a landscaped interior court.

The project was planned by the architectural division of Webb & Knapp, Inc., and it will be executed in association with local architects. Webb & Knapp's architectural division is headed by I. M. Pei, formerly a professor of architecture at Harvard University.

The project is under discussion with various city agencies and full approval of the city council will be sought before construction is begun.

(Continued on page 52)



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When Re-Use Counts-Specify Plywood Forms

MEASURED in terms of cost per use, Douglas fir plywood ranks as one of the most economical of all form materials. On apartments, office or factory buildings, plywood form sections can be used to job completion—eliminating the expense of rebuilding forms once the job is under way. Plywood deserves ordinary care in handling, but it does *not* require extreme caution at every step and is far more rugged than other panel type materials. The exact number of re-uses obtained vary with grade and the care it receives on the job. Builders report up to 10 to 15 re-uses with *Interior-type PlyForm* . . . twice as many with *Exterior-type PlyForm* and new overlaid plywood panels. See grade data below.

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- Economical! Plywood forms can be used over and over
- Plywood forms speed work—save time and labor
- Plywood is strong, rigid—yet light, easy to handle
- Plywood forms are puncture-proof, water and mortar tight
- Plywood has superior nail and tie holding properties
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- Plywood provides sheathing and lining in one material

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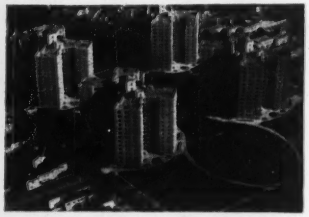
PANEL DISCUSSION

Plywood Forms Play Important Role In Parkmerced Project

Three prime factors—re-use, speed and appearance—dictated specification and use of plywood forms for both interior and exterior concrete surfaces on the new Parkmerced apartment project, San Francisco.

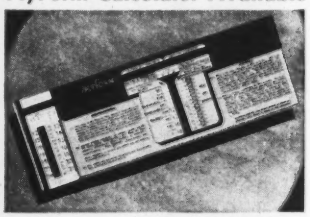


According to W. A. Bender, superintendent for Starrett Bros. & Eken, Inc., contractors on the job, plywood panels gave up to 15-18 re-uses, helped speed formwork application time and construction costs by about 20 percent and produced uniformly smooth, fin-free concrete surfaces. In fact, Bender reports, plywood-formed ceiling slabs were smooth enough to be painted after a minimum of grinding and application of spackling material—permitting a savings by eliminating expensive plastering.

Large built-up form sections 11 feet high and ranging from 20 to 48 feet long, were used on the walls. Forms were built of ¾" Exterior plywood, nailed to 2x4 studs, 12" o.c., backed by 2x4 and 3x4 walers. After each pour, sections were stripped and raised to the next story. Forms were used 13 times on the eleven 13-story tower buildings, then in some cases re-used further on the two-story Colonial type apartment buildings which dot the 200-acre tract.

Parkmerced was planned and built by Metropolitan Life Insurance Co. General Contractor: Starrett Bros. & Eken, Inc. Dinwidde Construction Co. was the subcontractor on concrete work. Leonard Schultze & Associates were the architects, with the firm of Thompson and Wilson serving as architectural consultants.

PlyForm Calculator Available



A handy new slide rule calculator which gives construction data for plywood forms is available for $1.00 from Douglas Fir Plywood Association, Tacoma 2, Washington. Included with the new calculator is the leaflet "Design Assumptions for the New Keely Calculator."

(Advertisement)

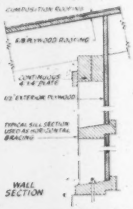
Standard Tie-Hole Spacing Gives Extra Re-Uses

Careful planning of tie-hole spacing and use of varying-size plywood form sections is paying off in extra re-uses on the Clover Park School job in Tacoma, Wash. On the job, 8′-long Exterior plywood form sections were pre-built in 3′, 4′ and 5′-heights to form concrete walls of the school which range in height from 2′ to over 16′. Necessity of drilling new tie-holes for each pour was eliminated by pre-drilling holes so that placement of tie-rods is standardized. Holes were made by stacking plywood and drilling with a template positioning guide.

The idea was developed by Roy Hartman, partner, Standard Construction Company, Tacoma. He reports that by eliminating drilling and form re-construction as the job progressed they were able to get better than 25 re-uses—and the plywood will give additional uses on subsequent jobs.

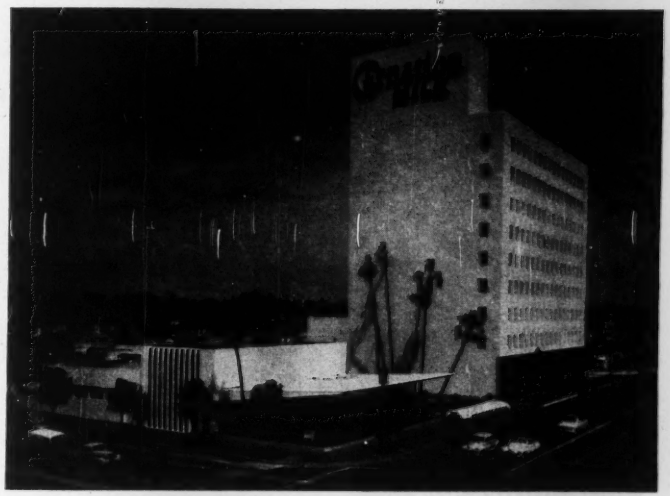
Single Wall Construction Used For California Studio

A single thickness of Exterior-type Douglas fir plywood attached to the inside of 4x4 posts serves as the exterior walls of this striking Corona del Mar, California, ceramics studio and shop. Designed by California Architect Frank Gruys, the structure also uses Douglas fir plywood roof sheathing.



Exterior-type fir plywood was specified for single-thickness walls because of the unique combination of properties which permits the panels to act simultaneously as both a structural and finish material.

Because good lighting is needed for work done in the studio, the building features large glazed areas. With so many windows, the insulating quality of double walls is not important. In addition, the mild climate provides good conditions for the use of plywood single wall construction. Exterior walls of the Kay Finch studio are A-A grade Exterior plywood placed on the inside of 4x4 posts on four foot centers so that the plywood presents a smooth wall on the inside. Windows are top hung or are in fixed sash between posts. The overhanging roof which reduces sun glare forms a definite architectural feature. Exterior plywood $\frac{5}{8}$″-thick is used for decking beneath built-up roofing.



When Appearance Counts— Specify Plywood Forms

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- Plywood forms speed work—save time and labor
- Plywood is strong, rigid—yet light, easy to handle
- Plywood forms are puncture-proof, water and mortar tight
- Plywood has superior nail and tie holding properties
- Plywood is easy to work with hand or power tools
- Plywood provides sheathing and lining in one material

Douglas Fir Plywood

PLYFORM

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EXTERIOR PLYFORM CONCRETE FORM EXT-DFPA

GENUINE DOUGLAS FIR PLYWOOD PLYFORM CONCRETE FORM PANEL DFPA INSPECTED

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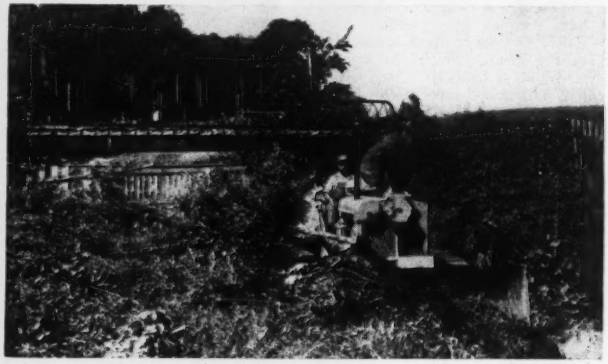

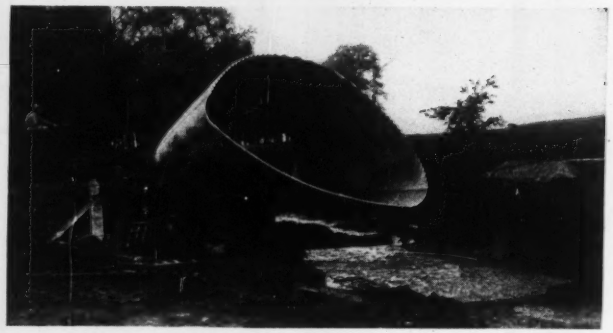

When an old bridge on a country road northwest of Lafayette, Ind., became so weak as to require replacement, the stream channel was cleared (top picture), a multiple-plate arch culvert was assembled on the roadway and then a bulldozer and cables were used to lower the pipe to a prepared bed in the channel (center). When it was in position, endwalls were built of local stone, and a dragline was used to place fill over the new culvert.

The pipe was supplied by Armco Drainage & Metal Products, Middletown, Ohio.

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New 200-ton rubber-tired roller rolls on TIMKEN® bearings

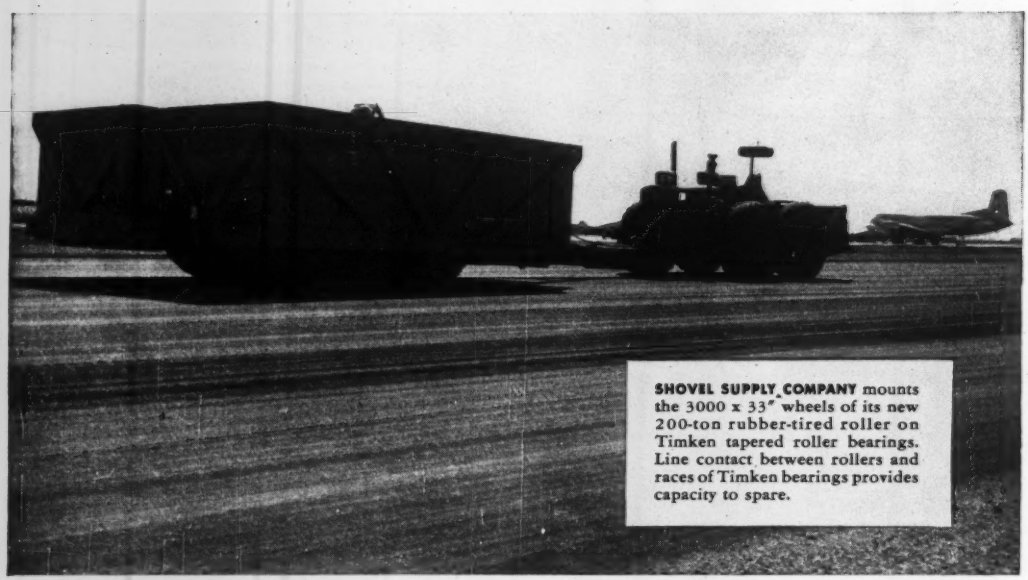
THIS new 200-ton rubber-tired roller was designed and built by the Shovel Supply Company to test fills on runways for heavy jet bombers and transport planes. Designed in two halves, so that each half will oscillate independently, the giant roller is equipped with four, 3000 x 33″ tires on specially built wheels.

To carry the 200-ton load safely with smooth, free-rolling action, Shovel Supply engineers specified Timken® tapered roller bearings for the wheels. They easily carry the tremendous radial and thrust loads set up by the oscillating halves of the roller. Their tapered construction takes loads from any direction and line contact between rollers and races provides extra load-carrying capacity.

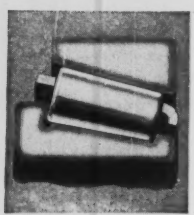
Timken bearings also prevent breakdowns or excessive wear due to the continuous shock loads that occur in an earth rolling operation. They are case hardened to have tough, shock-resisting cores and hard, wear-resistant surfaces. Their true rolling motion and smooth surface finish minimize friction and wear.

For giant machines like this, or wherever your wheels and shafts turn, be sure to specify Timken bearings. And always look for the trademark "Timken" stamped on the bearing. The Timken Roller Bearing Company, Canton 6, Ohio. Canadian plant: St. Thomas, Ont. Cable address: "TIMROSCO".

This symbol on a product means its bearings are the best.



SHOVEL SUPPLY COMPANY mounts the 3000 x 33″ wheels of its new 200-ton rubber-tired roller on Timken tapered roller bearings. Line contact between rollers and races of Timken bearings provides capacity to spare.



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Because the load is carried on the *line* of contact between rollers and races, Timken bearings carry greater loads, hold shafts in line, wear longer. The Timken Roller Bearing Company is the acknowledged leader in: 1. advanced design; 2. precision manufacturing; 3. rigid quality control; 4. special analysis steels.

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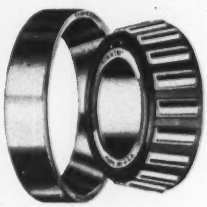

NOT JUST A BALL ◯ NOT JUST A ROLLER ⬭ THE TIMKEN TAPERED ROLLER ⬭ BEARING TAKES RADIAL ◫ AND THRUST ◫ LOADS OR ANY COMBINATION ✳

City, agency fight on treatment finances

The city of Louisville, Ky., and the Louisville Metropolitan Sewer District are at loggerheads over payment for a $12-million sewage treatment plant to reduce the pollution of the Ohio River. State pollution control officials have demanded that plant construction be started.

The LMSD claims that it cannot finance a $12-million bond issue without a 66% increase in sewer service charges, and that it has no intention of raising its rates because that would be "unfair" to its customers.

This means, says LMSD, that the city must issue bonds to pay for the plant. To this suggestion, the city has turned a deaf ear.

City officials say LMSD was created (in 1947) to handle all matters relating to sewers, and that includes the matter of financing new facilities such as the treatment plant.

Further, the city argument goes, it would be unfair to Louisville taxpayers to be compelled to pay for a treatment plant to serve the whole metropolitan area, including areas outside the city limits.

• **Controversy**—The argument over who is going to pay for what, has had this capsule history:

• LMSD went before the 1952 state legislature asking for a bill to enable the city to issue bonds for the treatment plant. The bill was killed.

• Wearied by delays in starting the treatment plant, the state pollution control commission told LMSD to get busy. LMSD pointed a finger at City Hall. City Hall pointed right back.

This was "passing the buck" as far as the state commission was concerned. So last week it told the city:

"The General Assembly (state legislature) authorized the city to attack the problem of providing sewer service and treatment of sewage through the creation of the Metropolitan Sewer District. The city elected to take this course and its action was approved by the Jefferson County Fiscal Court. However, the State Water Pollution Control Commission cannot accept this action as meaning that the city and county governments have escaped responsibility in this matter. Certainly Louisville and Jefferson County have a moral obligation and a direct responsibility to society to provide for the treatment of its sewage and industrial wastes.

(Continued on next page)

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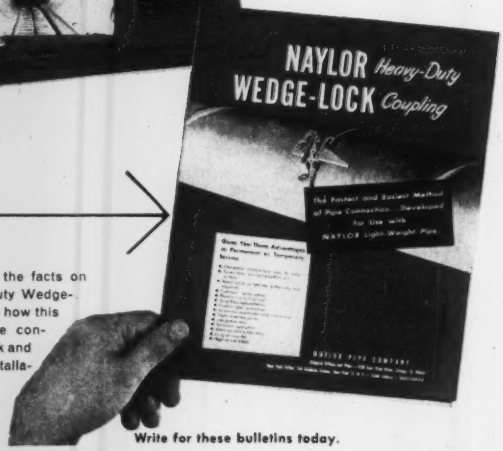
Bulletin No. 507 presents the many applications of NAYLOR Pipe in construction service, together with complete specifications, fittings and connections. It is a helpful guide for contractors.



Bulletin No. 513 gives the facts on the NAYLOR Heavy-Duty Wedge-Lock Coupling and tells how this one-piece, positive-type connection saves time, work and money in pipe line installation.

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"How the community discharges this responsibility is not the concern of the state commission. But, we do believe we have a right to ask that those persons responsible for the general welfare of the community concern themselves with finding an answer to a problem, which at the present time appears to be occupying the role of a step-child that no one wants to claim."

• **Finances**—From a financial point of view, it appears that the city is in a better position to "claim the step-child" than is LMSD.

When the sewer district got started in 1947 it set out to fulfill, in 10 years, what it considered were the community's basic needs. It selected about 42 projects from a much longer list which, taken in the aggregate, would give the metropolitan area a complete modern sewer system.

This 10-year program was expected to cost about $15.6 million. It did not include the treatment plant, nor did it include a huge trunk sewer which is now being built to serve the new State Fairgrounds layout, nor did it include two lines which are now being built to serve the new General Electric Appliance Park. Adding in these projects and making adjustments for much higher building costs, LMSD's 10-year program is now estimated at $32.3 million—about twice the 1947 figure.

To pay for all this work, the district has issued $8 million in revenue bonds. In addition, it has an annual income of about $1.5 million from sewer charges. This income is spent as follows: $460,000 to retire its bonds, $450,000 for operation and maintenance of the sewer system, and $600,000 for basic sewer extensions, as stipulated by the 10-year plan.

If it wanted to the city could handle the $12-million bond issue needed for the treatment plant. However, while city officials recognize LMSD's need for money, they are determined that any future assistance to the agency must be given on a city-county basis. In brief, they probably would not fight a joint city-county bond issue. What they are fighting is the suggestion that the city do the job alone.

Latest reports from Louisville indicate a continuing stalemate.

Tennessee cities

New sewerage facilities estimated to cost about $26.8 million are either under construction or in the planning stage in a number of Tennessee cities.

(Continued on page 58)

you may find it hard to believe these Amazing HEILINER Performance Figures

but — if you want to move more dirt at less cost — you can't afford to ignore them!

A JOB-STUDY check on a big dam project compared Heiliner against a fleet of other earthmovers. And when the performance figures were down in black and white, they showed Heiliner on top — again.

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With push-loading, the Heiliner picked up 18 yards in 28 seconds — the competitive units, 11 to 16 yards in 30 seconds. In downhill self-loading tests, the Heiliner picked up 18-yard loads in a distance of 150 feet in 80 seconds.

In a nine-hour period, the Heiliner hauled 64 loads — traveling in overdrive over nearly half the 10,000-foot haul road. The other earthmovers hauled 61 loads or less in the same time.

All the loads carried by the Heiliner were heaped loads. Since the Heiliner made at least three more trips per shift and carried 2 more yards per trip, compared with the 16-yard (heaped) competitive unit, it was estimated that the Heiliner was delivering about ten more loads per shift. On the basis of a two-shift day, six days a week, that totals 120 bonus loads a week.

Want to see performance like that at first hand? Let your Heil road-machinery distributor arrange a demonstration — you name the time and place.

Send coupon for free bulletins on the Series 800 Heiliner, with 18-cu. yd. scraper and 20-cu. yd. dump wagon . . . and the Series 500 Heiliner, 13-cu. yd. scraper.

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Recently, we faced that fact twice within three months.

First, a client requested that we deliver a set of drawings before we had a chance to run off blueprints. While they were in his office, a "green" clerk all but ruined one drawing. In drafting time alone it was worth $800.00.

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Fortunately we carried a Records Destruction Policy in the Hartford Accident and Indemnity Company which paid the entire cost of replacing *both* of these drawings.

In your own contracting operations, you *know* how frequently blueprints, engineering plans, drawings and tracings are exposed to damage or loss.

You know, too, that you'll have to replace them if they're destroyed.

But have you ever considered how much that can cost you? Even a series of small losses can add up to important money . . . one large one can run into thousands of dollars.

That's why it is virtually a *business necessity* for contractors to have Records Damage Insurance that will provide the money to restore or replace plans, blueprints, etc.—your own, or those that have been entrusted to you.

The cost of this specialized insurance is moderate, the protection it provides is great. Ask your Hartford Accident and Indemnity Agent or your insurance broker for full details. Or write us for a copy of Bulletin 76059.

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MUNICIPAL

the state stream pollution control board has announced.

The board, meanwhile, placed five cities on notice either to comply with its regulations dealing with stream pollution control or to show cause why this had not been done.

All five municipalities were included in the list of 17 cities which were designated by the board, several years ago, as "critical pollution areas."

The five cities in this critical group are: Bluff City; Clinton, and the industrial concerns of Bush Brothers & Co. and Magnet Mills; Rogersville; Shelbyville, together with McGill Knitting Mill and Southern Rendering Co.; South Pittsburg.

R. D. Farrell, technical secretary, said the board had called on the 17 cities to file progress reports. He said reports had been received from 12 cities.

• **Progress reported**—Mayor Ben West filed a report for Nashville stating that consulting engineers employed to handle construction of a sewage disposal plant are now reviewing the five-year-old plans.

West said a contract for a small project involving 3,600 lin ft of sewer line will be let this month. "All steps for financing the project have been taken," he said, and added that bonds totaling $11 million will be issued and sold in January.

The other cities filing progress reports were: Knoxville; Bristol; Shelbyville Mills; Kingsport; Columbia; Red Bank Utility District; Elizabethton; Harriman; Johnson City; Chattanooga and Lupton City.

Knoxville is planning new sewerage facilities to cost an estimated $5 million; Chattanooga has employed consultants to review plans and supervise construction of interceptors and prepare plans for treatment works to cost about $6 million.

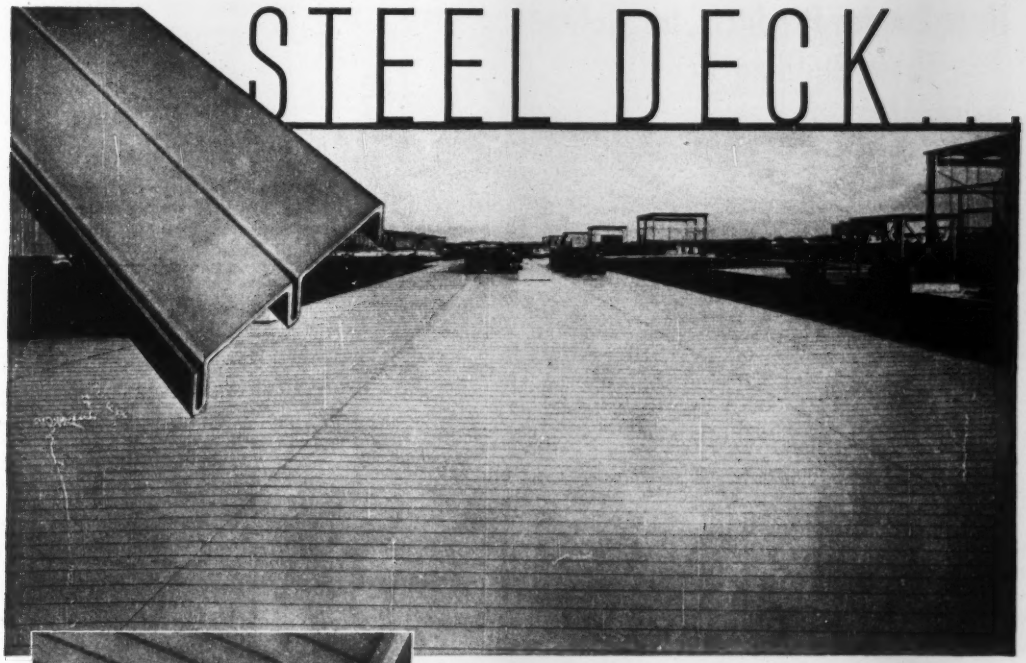
One of the largest projects is a $3.5-million treatment plant nearing completion at Bristol, Tenn. Farrell said this plant will be ready for operation in January.

Facilities under construction in Cookeville, Waynesboro and Sewanee will be completed during the first half of 1953, he said.

The city of Columbia reported it is now in process of getting bids for a new water treatment plant and believes that the new sewage treatment plant cannot be built at the same time. The report said, however, that when bonds have been issued for the water plant and the location established, the city council then in-

(Continued on page 60)

STEEL DECK...



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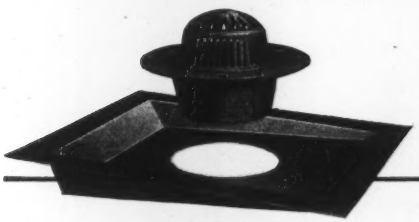
When it comes to the selection of a permanent, firesafe roof for any type of industrial or commercial building, you will find that a Steel Deck Roof will cost less per square foot than any other type of construction with a comparable "U" Factor. Here are the facts: Steel Deck can be insulated to the exact degree to meet thermal requirements of the temperature range in any given locality—and, Steel Deck's light weight permits substantial savings in the supporting structure. Total dead load, including insulation and composition roofing material, is less than any other type of roof. Mahon Steel Deck is available in Galvanized or Enamel Coated Steel . . . it offers desirable features in both design and quality—for instance, the vertical-leg stiffening ribs of Mahon Steel Deck have no angular or horizontal surfaces where troublesome dust may accumulate. In the enameling process, the metal is chemically cleaned and phosphated to provide paint bond, and the protective coat of synthetic enamel is baked on at 350° F. prior to roll-forming. These are features worthy of your consideration. See Mahon's Insert in Sweet's Files for complete information, or write for Catalogs B-53-A and B.



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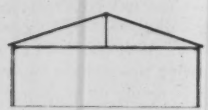

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tends to employ engineers immediately to make a complete survey of sewerage needs.

II. Air pollution

Acting upon recommendations made earlier in the year by the University of Washington, the Seattle City Council has approved two budget items for 1953. This approval is expected to initiate a program of air-pollution control.

The budget, as adopted, includes one $8,000-item for an air pollution survey and another of $20,000 for a survey of garbage disposal and incineration.

The air pollution survey will study what other cities are doing in the field, to help prepare an ordinance to control the Seattle situation.

A University of Washington committee headed by Prof. F. B. Farquharson has recommended an ordinance establishing a division of air-pollution control. The report also recommended that incinerators be installed at the city's three garbage burning dumps.

The committee found that "settled solids" averaging 27.5 tons per square mile settle on Seattle in a year as compared with 26.1 tons in Los Angeles; 27.2 tons in Cincinnati; 19.5 tons in Rochester, N. Y.; 49 tons in Chicago and 48.8 tons in Detroit. The concentration in Seattle's industrial district reaches 53.1 tons per square mile.

III. Other sewerage news

Construction work has been started on the long delayed Southfield Interceptor Sewer for Detroit, Mich. Michigan Sewer Construction Co., will do the work for $5.3 million. Bids were taken in September for the second time. Contract for this job was first awarded to the James N. Driscoll Co., Philadelphia, in March 1951.

Work was stopped by Driscoll on complaint that the city failed to provide critical materials. The Driscoll bid totaled $4.8 million. A suit between the city and Driscoll growing out of this dispute is pending in the federal courts. Driscoll sued for $100,000 charging unnecessary delay by the city, which filed a counterclaim asking damages of $600,000.

• **Richmond, Va.**—An ordinance directing the city manager to proceed with plans for a municipal sewage disposal system was introduced last

(*Continued on page 62*)

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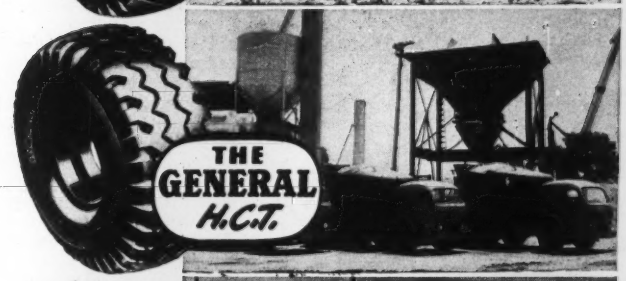

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UNITED STATES STEEL

month in the Richmond, Va., city council.

The ordinance was designed to satisfy the state water control board's insistence that the city eliminate pollution in the James River. The measure did not mention costs or financing of the project. It has been proposed previously that the city finance a $16-million sewage disposal system by a tax equal to 100% of the water bill.

State accuses city of killing 10,000 fish

Destruction of an estimated 10,000 silver salmon and other fish in the Green River by industrial wastes discharged from the Kent sewer system has caused three Washington state agencies to take precedent-setting action against the city of Kent.

The State Pollution Control Commission served written notice on the city that, in the opinion of the commission, the city "is in violation" of state law because it "failed to control the polluting content of sewage" discharged into the river. The state departments of fisheries and game filed a joint claim of $81,500 with the city clerk for the loss of the fish that were killed and threatened court action.

The heavy loss of fish occurred Nov. 3 when, according to state investigators, a poisonous substance was released into the river. Two Kent plants, a plastics manufacturing company and a metal concern, are suspected as sources but deny responsibility. The poison dissipated so rapidly it could not be traced, but rapidly it could not be traced.

Formed in 1940, the Pollution Control Commission previously has centered much of its attention on pulp mill wastes, a serious threat to the fisheries and oyster industries. It also has worked with cities and towns on sewage disposal problems but until the current instance has avoided a "get tough" policy.

Minnesota engineers request higher salaries

The standard of minimum salaries for civil engineers in public employment has been increased by a vote of the Board of Directors of the Minnesota Society of Professional Engineers, of which Charles Doell, Minneapolis Superintendent of Parks, is president.

The new salary minimums are about 10% higher than existing minimums set by the society in May 1951, for eight grade classifications.

T. S. Thompson, of the Minnesota State Highway Department and chair-

man of the Salary Schedules Committee, presented the new minimums at a meeting of the St. Paul chapter of the society two weeks ago. Minimum fees for private engineers, in effect since February 1947, were reapproved by the board.

James Ryan, of the University of Minnesota engineering faculty as well as of General Mills, Inc., told the St. Paul chapter that increased salaries for civil engineers are a "must" because, unless higher salaries are offered, the shortage of engineering school graduates going into government work will become more pronounced.

Furthermore, Mr. Ryan declared that the state highway department and the larger municipalities, like the cities of St. Paul and Minneapolis, as well as the federal government, already have great difficulty in getting men to fill the civil engineering positions available.

"Less than 20,000 men will be graduated from engineering schools in this country this year," Ryan said. "The normal yearly replacement is 30,000 jobs. Already there is a need for 50,000 engineers in this country.

The recommended new minimums range from $350 to $1,075 per month through eight grades.

Garbage-man cometh not

Food waste disposers manufactured by the General Electric Co. will replace the garbage collector in Shorewood Hills, Wis., a suburb of Madison. Bruno A. Stein, president of the village board, signed the contract for installation of the appliances in each of the community's 475 homes.

The plan was first discussed after the village faced an increase in garbage collection costs because of the growing reluctance of farmers to feed garbage to their livestock.

Shorewood Hills decided to install the disposers at village expense after studying reports from Jasper, Ind., which two years ago installed units on a community-wide basis.

The disposal units will be purchased by the village, which will retain title and install them in all homes in the community. Payments will be made from village funds over a period of ten years.

Annual ammortization cost over the 10-year period will be about equal to the current yearly collection expense. Installation of the units began in November, and the project will be completed in about eight months.

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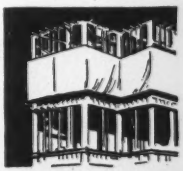
PROTECTION

FLAMEFOIL-TREATED WEBB TARPAULINS

five-way protection



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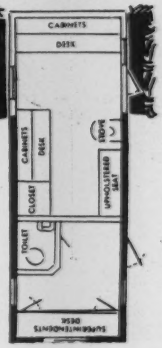

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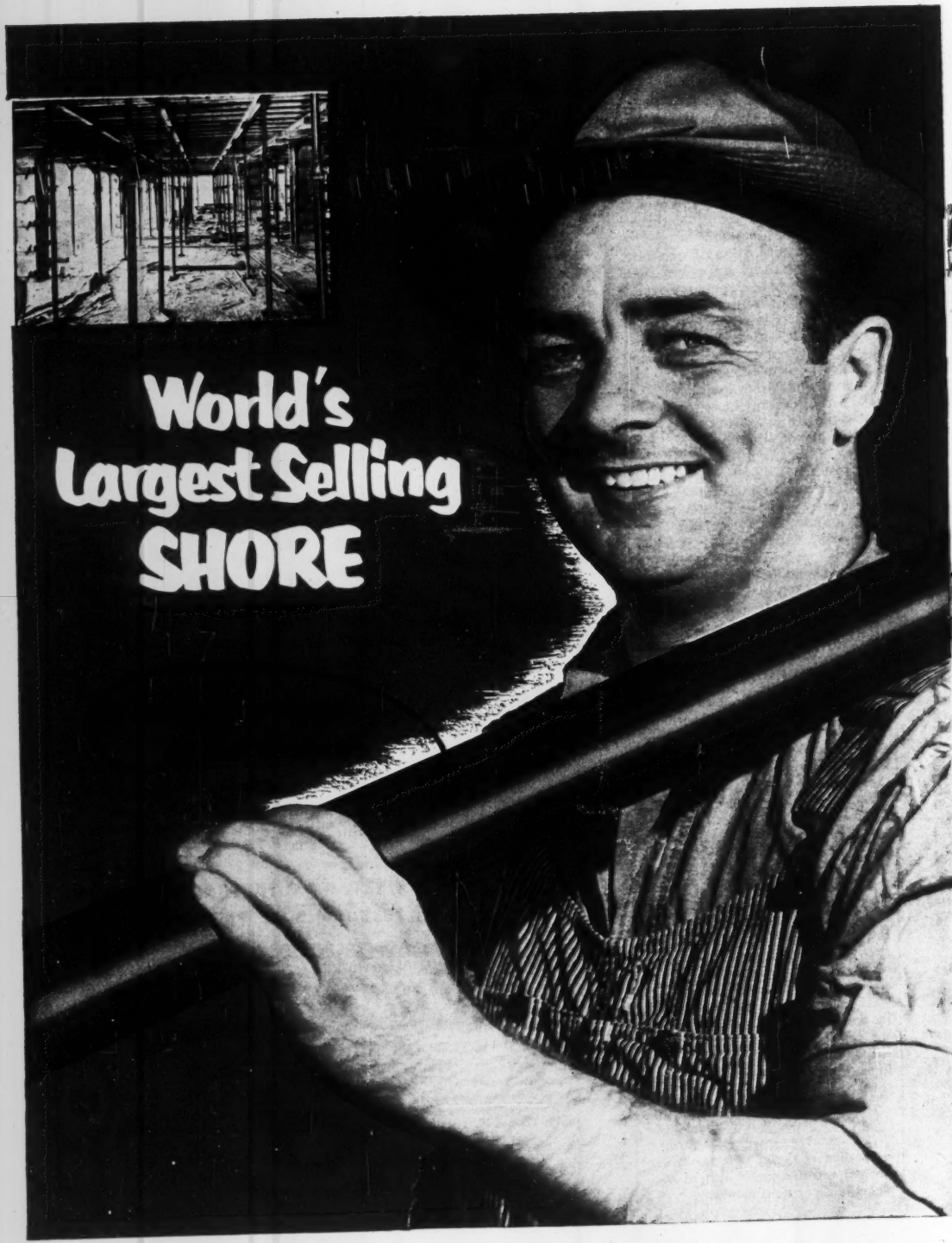
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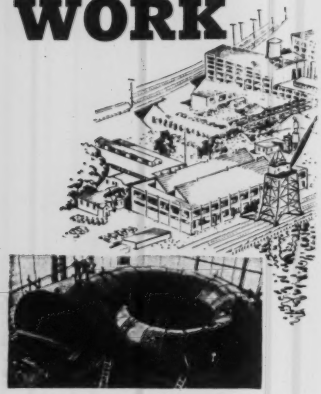

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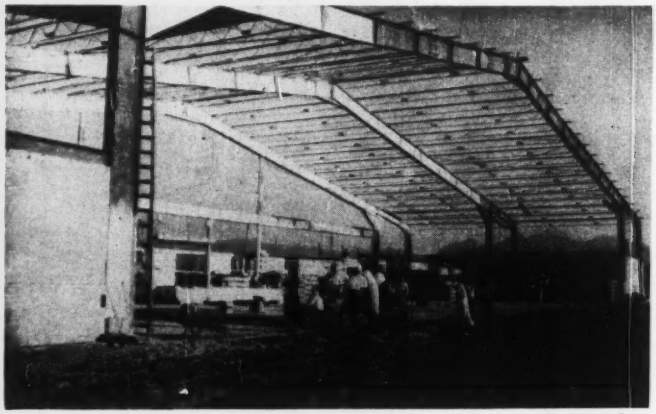

STEEL RIGID FRAME spanning 155 ft supports the roof of a hangar in Brazil.

Hangar sets records for Brazil

A nose-hangar erected at Galeao airport near Rio de Janeiro establishes some significant firsts for Brazil. It is the longest span steel rigid-frame structure in South America. The steel was rolled and fabricated locally (Volta Redonda Steel Mill) and erected with local labor, and the open-web steel joists that support the hangar roof were the first to be locally manufactured for use as purlins.

The hangar, 203x66 ft in plan, was built for Panair do Brazil, a subsidiary of Pan American Airways, for maintenance work on passenger planes of the Constellation and Boeing-Stratocruiser class. It has a central span of 155 ft, flanked on both sides by 24-ft spans. Height at crown is 44 ft.

The rigid frames are spaced 33 ft apart, and the open-web joists span between them.

Steel framing for the side spans was erected first. This framing included a 10-ft section of the central-span rafter at each column. The rest of each 155-ft rafter was assembled on the ground by bolting and then welding together 20-ft lengths of builtup sections. Cambered upward to counteract the dead-weight deflection, this 135-ft beam was erected with two gin poles and then welded in place. Electrical strain gages and optical methods were used to check computed stresses and deflections.

The erection crew rapidly learned the technique. Lifting time was 16 hr for the first beam, 2 hours for the second, and 45 min for the third. The complete steel frame was erected in 38 days.

Total weight of steel is slightly more than 80 tons, averages 13 lbs per sq ft of roof area. It cost $27,000 in place. Low bid for a timber structure was 12% higher and for a concrete structure 35% higher.

Tecomat Ltd., of Rio de Janeiro, was the steel contractor. S. P. Bunea, chief engineer, designed the structure and supervised steel erection.

Mexico opens expressway

The new 50-mile long Mexico City-to-Guernavaca expressway, said to be the first of its type to be built in Mexico, has been placed in service.

The highway is a 4-lane divided road, surfaced with mixed-in-place asphaltic concrete, and built at a cost of about $10 million.

The road crosses a range of mountains reaching to 10,000 ft in height, but maximum grade is held to 4% except at one spot where it is 5%. Most curves are 4 deg, three are 8 deg, and one is 10 deg.

The road will form the first link in a series of three expressways that eventually will run the entire distance to the Pacific resort city of Acapulco. The second section from Cuernavaca to Iguala runs nearly 30 miles and is due to be completed soon. This section, also a divided highway, will be completed at a cost of about $7 million. The final section is still in the

(*Continued on page 69*)

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with P&H ELECTRIC SHOVELS

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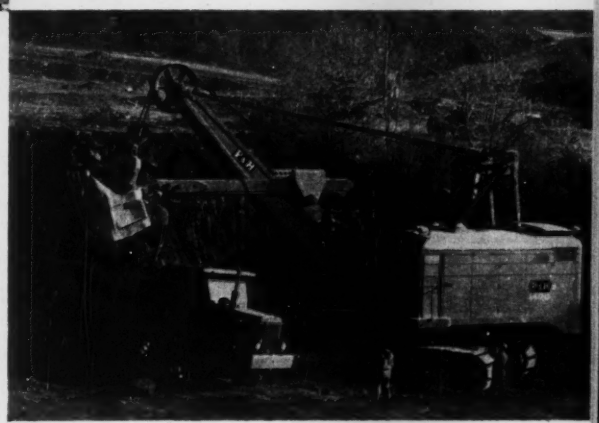

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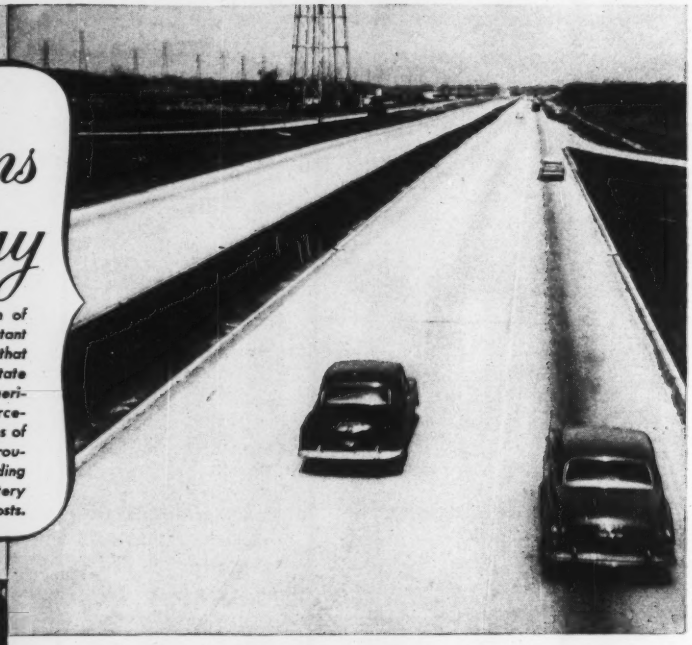
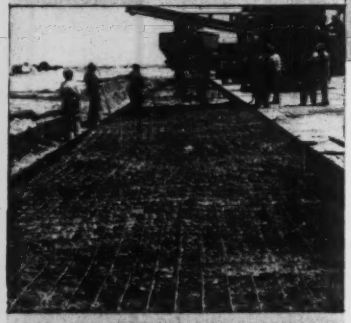
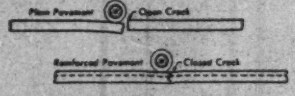
The Edens Expressway

Shown here is a typical section of the Edens Expressway, an important part of the highway network that serves the Chicago area. Illinois State highway engineers specified American Welded Wire Fabric reinforcement with contraction joint spaces of 100'-0" centers to insure long, trouble-free service and a smooth riding surface from this main traffic artery —and also reduced construction costs.





IDEAL FOR USS with modern paving machinery, American Welded Wire Fabric is also generally preferred for concrete reinforcement in city streets, curbs, sidewalks and sewers—in culverts, abutments and bridges—in foundations, yards, floors, walls and roofs of all sorts of buildings.



AS THE WHEEL LOAD approaches an open crack in plain pavement, one slab end carries the entire load. As the wheel approaches the closed crack in pavement reinforced with American Welded Wire Fabric, both slab ends, instead of one, carry the load, preventing damage to the slab and to the subgrade, reducing the rate of cracking, preventing heaving and spalling, which reduces maintenance cost and increases the service life of the highway.

built stronger, to last longer and to ride smoother with AMERICAN WELDED WIRE FABRIC

ON many a mile of the Nation's highway system, American Welded Wire Fabric has helped to improve driving conditions, reduce construction costs and save important money on maintenance—and very important, it protects the public's investment through longer pavement life.

With American Welded Wire Fabric, the many small high-yield steel members keep the driving surface smooth and even, make possible longer slabs and fewer joints, hence increase riding comfort and safety.

The big flat sheets are easily placed by minimum crews, lie flat and stay put during pouring. Higher allowable stresses mean that you use less steel, less concrete. The result is—savings on materials and labor that sharply reduce construction costs.

Long experience has proved that American Welded Wire Fabric reinforcement reduces the rate of cracking, prevents progressive damage to slab and subgrade, insures additional years of trouble-free service, thus cutting maintenance costs to the bone.

Our specialists will be glad to consult with you on your individual reinforcing problems. You will find that most jobs can be handled with some of the many standard designs, styles and sizes of American Welded Wire Fabric that are now readily available. Why not drop a line to our nearest sales office for a copy of the American Welded Wire Fabric Catalog.

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EVERY TYPE OF REINFORCED CONCRETE CONSTRUCTION NEEDS

U·S·S AMERICAN WELDED WIRE FABRIC

UNITED STATES STEEL

planning stage.

Engineers estimate that travel time between the capital and Acapulco will be cut from 10 hours to 5 hours.

International briefs

• **Hospital for Colombia**—The Colombian Ministry of Public Works has started construction of a new general hospital in the city of Bucaramanga, to cost about $4 million. The work is expected to be completed by the end of 1955. The structure will be 11 stories high and hold 600 beds.

• **Highway association**—A new organization, the Guatemalan Roads Association, has been formed at Guatemala City by individuals and manufacturers interested in improving existing highways. Although independent, the organization has been recognized officially by the government.

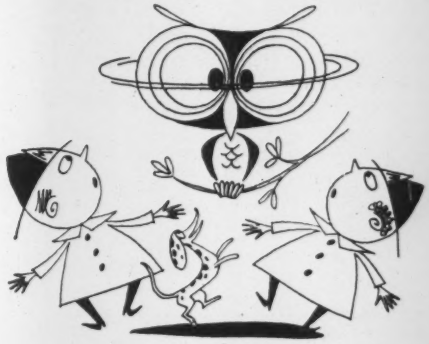
• **Indonesian bridges**—The Indonesian Ministry of Public Works completed an estimate of cost of construction of bridges and roads throughout the country, and came up with an estimate of more than half a billion U. S. dollars. However, government circles said that the greatest difficulty is not only the vast amount of money involved but the shortage of qualified technicians.

• **Power for Egypt**—The Egyptian government has decided to go ahead with creation of a steel industry, using hydro power from Aswan Dam and iron ore from upper Egypt. Construction of the steel plant planned will be open to bids from all over the world, government spokesmen said.

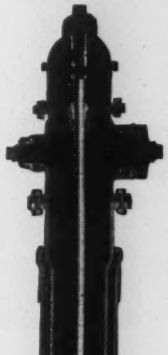
• **Skyscraper at Moscow**—Russian journals have announced construction, on Rebellion Place, in Moscow, of the highest building in the Soviet Union. A residence structure, the building will have 450 apartments, two motion picture theaters and some shops. No exact dimensions were given, but reports said that more than 4,750 tons of steel reinforcement went into the building.

• **Po flood control**—Mindful of the great damage caused by flooding of the Po River a year ago (ENR Dec. 6, '51 p. 59) the Italian Ministry of Public Works has asked parliamentary approval for a series of flood control works for the river and its eastern tributaries. Canals and other works to carry off excess flood waters, and a system of new and stronger dikes are being considered.

Head turns all the way around



Nozzle direction may be changed easily and at any time by simply loosening the bolts in the swivel flange and turning the head . . . The number and size of nozzle outlets can be changed by replacing the head, and without shutting off the water.



MATHEWS

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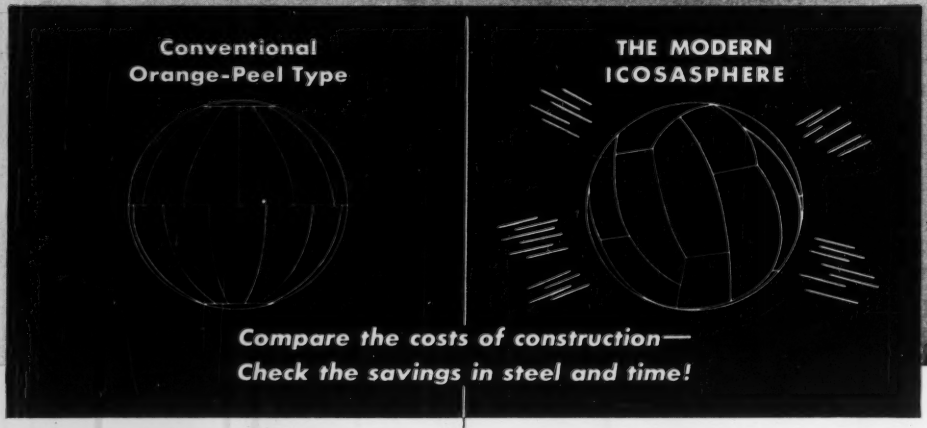

Conventional "orange-peel" plate layout for sphere measuring 28.75 ft inside diameter, of 1⅝" plate, for 205 lb working pressure.

Total area of plates required	3670 sq ft
Scrap loss	40%
Total length of welded seam	590 ft

Icosasphere plate layout for sphere measuring 28.75 ft inside diameter, of 1⅝" plate, for 205 lb working pressure.

Total area of plates required	2970 sq ft
Scrap loss	13%
Total length of welded seam	468 ft

Sphere for sphere, the ICOSASPHERE SAVES

—*46,300 lbs of steel plate*—or, 19% of the steel required by conventional design

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A new approach to sphere fabrication

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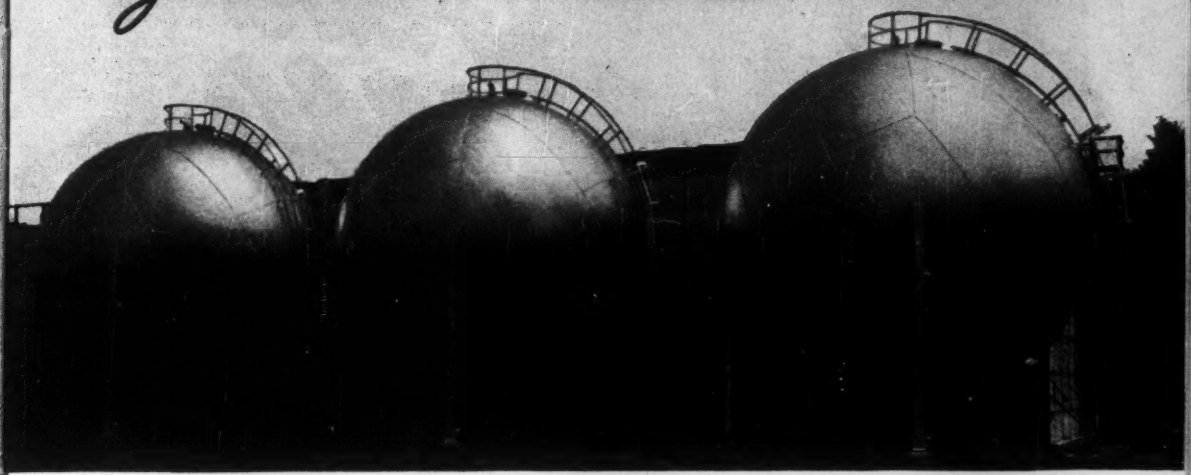

THE ICOSASPHERE*, an important recent development of Pittsburgh-Des Moines, is now at the service of industry for applications where internal or external pressures are a factor. • The unique design of the Icosasphere enables accurate determination of rectangular plate sizes that will cut to desired special shapes with minimum waste. In addition, fewer plates are required, with shorter length of welded seam. • The results: marked economies in material and fabrication; *lower comparative cost* to the purchaser. • If you will write us of your storage problem, we will be glad to provide an Icosasphere quotation. Just address the office nearest you.

* The Icosasphere is a sphere made up of plates whose joints lie on the expanded edges of a circumscribed icosahedron.

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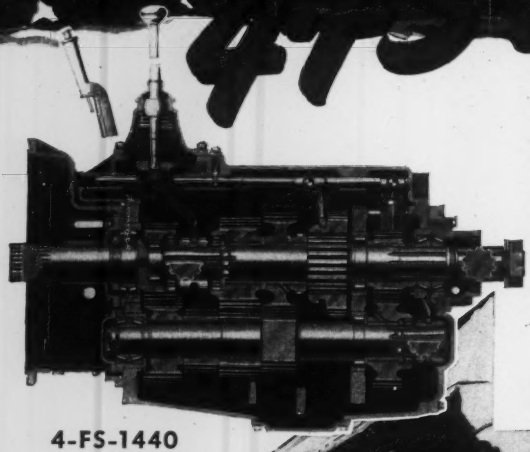
In keeping with its tradition of setting the pace with "The Best for the Biggest," Fuller announces its new 4-FS-1440 Transmission with closely spaced ratios for use with truck-type torque converters. This new unit makes new load-and-road performance possible in heavy duty service.

Built to deliver the power from the biggest automotive diesel engines now available plus ample capacity for high torque multiplication from the most advanced torque converters, the new 4-FS-1440 puts up to 400 hp. to work efficiently and dependably.

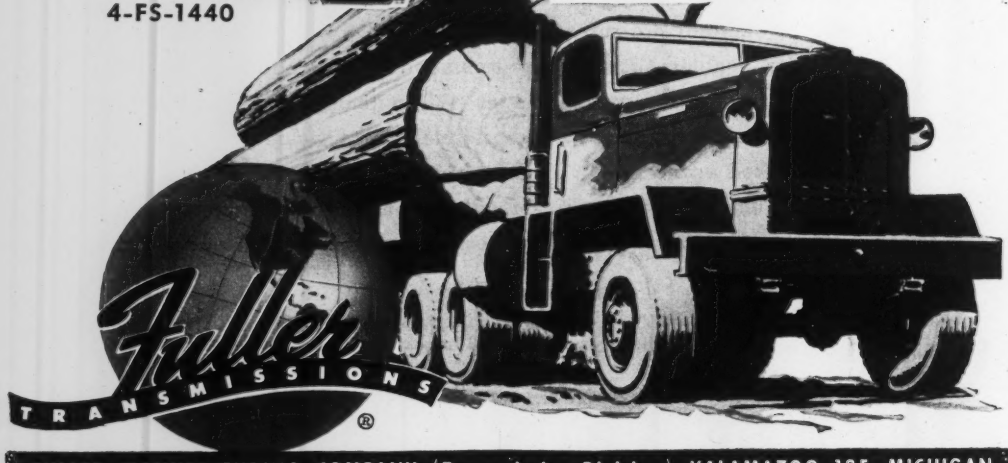
For maximum service plus maximum versatility in the toughest of heavy hauling, investigate the new 4-FS-1440. Write for performance and application data.



4-FS-1440

VITAL STATISTICS

Hp. handled—400. Speeds forward, 4: first, 1.98; second, 1.40; third, 1.00; fourth, .71. Reverse, 1.61. Weight 775 pounds.



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ASCE past president gets Columbia Alumni honor

Richard E. Dougherty, retired vice-president of the New York Central Railroad and past president of the American Society of Civil Engineers, has been named recipient of the 1952 Lion Award of the Columbia University Alumni Club of Central Westchester County, N. Y.

Presentation of the award will be made at the group's annual meeting Dec. 18.

Following his graduation from Columbia's School of Engineering in 1901, Dougherty served as an instructor in the Columbia Department of Civil Engineering. In 1902, he joined the New York Central System as a rodman, transitman and assistant engineer on the Mohawk Division. After nearly 50 years with the company, Dougherty retired as vice-president in charge of improvements and developments and assistant to the president, in 1951.

He is currently acting as consulting engineer to several railroads, is a member of the advisory council for science and engineering of the University of Notre Dame and is chairman of the building plans committee for the new Columbia University Engineering center. He was a member of the group of experts that planned the remodeling and repair of the White House.

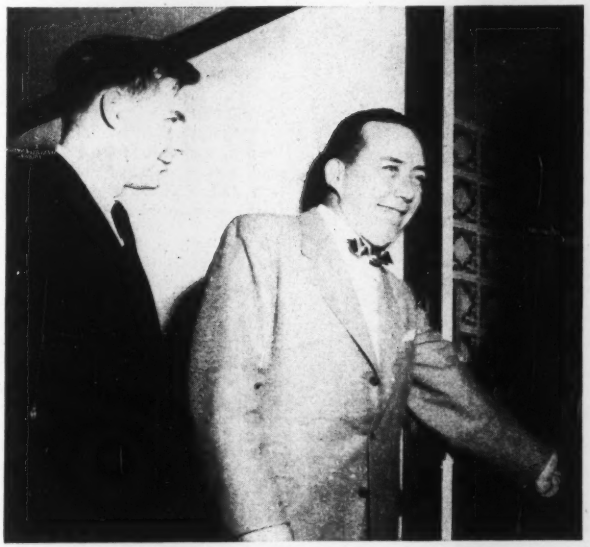
50 years of city building brings honor to contractor

Fifty years of participation in New York City building were reviewed last week when Arnold Gottlieb, co-founder of Gotham Construction Corp., was honored at a dinner in the Waldorf Astoria Hotel.

Principal speaker at the fiftieth anniversary dinner was James A. Farley, former Postmaster General. Lee E. Cooper, real estate editor of the New York Times, was toastmaster.

It was in December, 1902, that Gottlieb, a native of Vienna, started his first construction company and shortly afterward undertook his first major job —a city contract for paving the newly-developed areas of Brooklyn. Another milestone of the earlier days was the erection of the home of the late Otto H. Kahn.

In 1912, Gottlieb and the late Nathan Picket formed Gotham Construction Corp.



MCAA OFFICES OPENED—George A. Miller, executive secretary of the Mason Contractors Association of America, and William F. Nelson, association president, at the door of the MCAA's new executive offices at 208 S. La Salle Street, Chicago.

STOP
THAT LEAK
FOR GOOD

9 SIKA COMPOUNDS TO END REPAIR PROBLEMS ON CONCRETE AND MASONRY

FOR PRESSURE LEAKS
(SIKA No. 2, SIKA No. 4A) Leaks are easily sealed on the exposed side with quick-setting SIKA mortar. It is not necessary to relieve pressure. SIKA No. 2 is used against heavy pressure or bleeders, SIKA No. 4A against seepage or moderate pressure.

FOR JOINTS OR CRACKS
(IGAS JOINT SEALER, SIKA CAULKING) IGAS JOINT SEALER seals even against pressure and continual movement. Will not sag, crack, dry out, become brittle or lose adhesion. In work above grade, SIKA CAULKING is used where highest resistance to atmospheric change is desired.

FOR EXTERIOR REPAIRS
(SIKA-KOTE, SIKA TRANSPARENTS) SIKA-KOTE, a protective and decorative coating in 9 colors and white, prevents moisture penetration on concrete and masonry structures. SIKA TRANSPARENTS render brick structures water-repellent and preserve their appearance.

FOR NON-LEAKING SURFACES
(SIKACRETE, SIKA-KOTE) Water-resistant SIKACRETE mortar is used wherever cement-coat work is indicated. Economical, easy to apply. SIKA-KOTE prevents penetration of ground-moisture.

FOR GUNITING OR PRESSURE GROUTING
(SIGUNIT, SIKA No. 4, PLASTIMENT) For quick work against leaks or in tidal areas, SIGUNIT in mortar prevents washouts. SIKA No. 4 (GROUT-SIKA) accelerates set, increases cohesion of mortar and adhesion of grout to rock.

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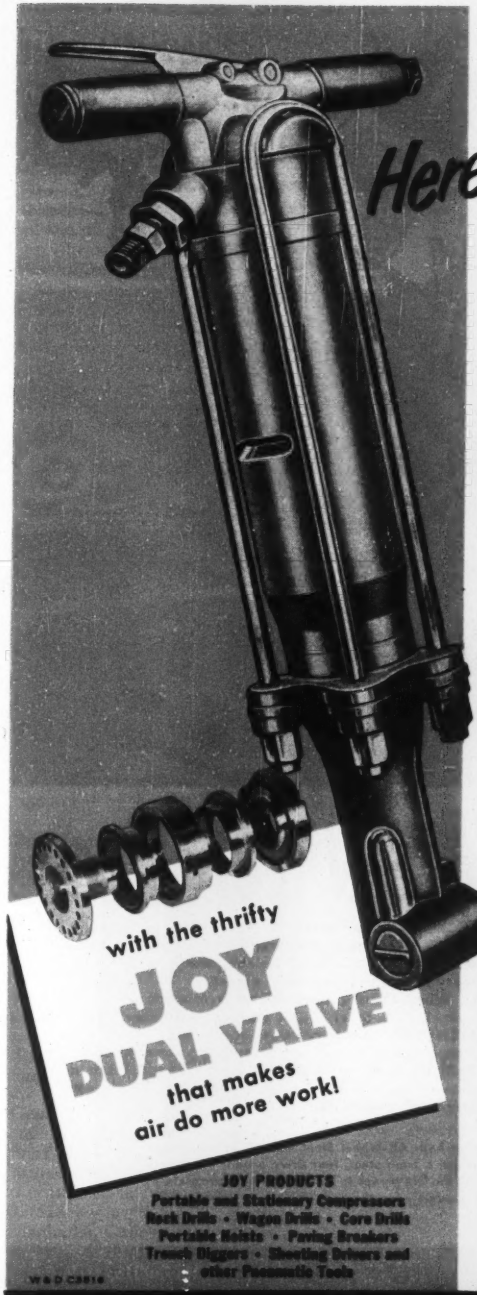
Careers . . .

• **Appointed**—New planning engineer for Pike County, Ohio, is **Spencer B. Randall** who will prepare a uniform building code for the area surrounding the AEC's $1.2-billion atomic energy plant and will serve the county's three incorporated villages of Waverly, Piketon and Beaver . . . Appointment of three district engineers in the New York State Department of Public Works was announced last week. **Elmer G. H. Youngmann** was named to fill a vacancy in the Rochester district office, **James H. Thomas** will head the department's Hornell office and **Robert W. Sweet** was named to the Watertown office . . . **Col. Lynn C. Barnes,** formerly in charge of the Japan Construction Agency, Far East Command, will head the Albuquerque District Engineer's office, succeeding **Col. Charles H. McNutt.**

As special representative of the California Department of Public Works, **C. M. Gillis** of Riverside will represent the Department's director before various boards and commissions, governmental agencies and private organizations . . . Named superintendent of the Minidoka Bureau of Reclamation project in Eastern Idaho is **Merle L. Tillery,** currently chief of the Land Use and Settlement Branch of the Boise regional office . . . **Loren C. Miller** has taken over duties as assistant works manager of the Bliss Steel Fabricating Division of The Austin Company. Miller has been in charge of structural design at Bliss for the past year . . . Officials of Blaw-Knox Co., Pittsburgh, have announced two promotions in the company's steel form department. **John D. Jessen** has been named manager and chief engineer and **H. P. Cerruti** will succeed Jessen as assistant chief engineer.

• **Elected**—**L. S. Meyer,** President of the Hydraulic-Press Brick Co., St. Louis, Mo., has been elected president of the Structural Clay Products Institute . . . **Lt. Gen. Levin H. Campbell, Jr.,** wartime Chief of Ordnance was elected chairman of the Automotive Safety Foundation at the annual Board of Trustees meeting in Chicago . . . Re-elected president and vice-president of the American Standards Association are **Roger E. Gay,** president of The Bristol Brass Corp., and **Edward T. Gushee,** vice-president of the Detroit Edison Co.

• **Resigned**—**N. M. Wilkie** of Lakewood, chief engineer of Ohio's highway planning program, resigned to take a job with a private engineering firm.



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For fast demolition of those extra tough-and-heavy reinforced concrete sections—for driving heavy sheet piling with a driving shoe—for all your really rugged jobs . . . the K-89 Super Heavyweight gets the work done.

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Owners of Joy K-type Paving Breakers like the interchangeability of many parts which keeps parts stocks at a minimum . . . and like all "Silver Streak" breakers the Super Heavyweight K-89 is CADMIUM PLATED inside and out with that silver-like covering which prevents rusting, eliminates scoring of piston and cylinder, and aids lubrication. ● Write today or contact your nearest Joy office or distributor for complete details about this NEW heavy-duty breaker.

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Getting down to fundamentals, the main job for any self-propelled grader is to move a satisfactory amount of material with the blade, and keep traveling in the desired direction. To move a satisfactory amount of material requires adequate traction. To keep traveling in the desired direction means that a way must be found to overcome the side thrust of the load on the angled blade . . . if such control is lacking, one end of the grader or the other slides sideways.

Traction and *directional control* . . . these are the fundamental problems of the designer. They are completely solved in Austin-Western "88-H," "99-H" and Master "99" Power Graders by exclusive all-wheel drive and all-wheel steer. They can never be completely solved in an ordinary front steer, rear drive grader.

All-Wheel Drive and All-Wheel Steer work as a team, each making the other doubly effective. All-Wheel Drive provides 30 per cent more Power-at-the-Blade. All-Wheel Steer provides all-around maneuverability not approached by ordinary motor graders. This is why Austin-Western machines go places where others cannot go . . . do things other graders cannot do.

In the photograph above, an Austin-Western "88-H" is using both All-Wheel Steer and All-Wheel Drive to work smoothly and easily around a short radius curve, which a front steer, rear drive grader could not negotiate. Rear steer provides the required maneuverability . . . the live power in the front drivers completely nullifies the tendency—always present in ordinary motor graders—for the rear drivers to increase the turning radius by skidding the dead front end sideways.

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OBITUARIES

Harvey N. Davis, 71, president emeritus of Stevens Institute of Technology, Hoboken, N. J., and for 23 years its president, died in N. Y. City Dec. 3. An educator, engineer and scientist, Dr. Davis applied his talents on and off the campus. In both world wars he made outstanding contributions through research, teaching, and training. He was the son of Nathaniel French Davis, for 41 years a mathematics teacher at Brown University. He grew up on that campus and was graduated from the university in 1901. He became professor of mechanical engineering at Harvard, and worked for the General Electric, Air Reduction and other big companies. From his first days at Stevens, Dr. Davis was an advocate of basic, but unspecialized, training in engineering. He believed that fundamentals should come first and specialization later. The training he prescribed was to provide a liberal education for a lifetime, one that would qualify a person for the highest administrative responsibilities of business and industry. During the first world war Dr. Davis was active in helium investigations conducted by the Army, Navy and the Bureau of Mines, and as an aeronautical engineer in the division of science and research, U. S. Air Service; in the second war he was director of production research and development of the WPB.

Brig. Gen. Henry C. Newcomer USA (ret), 91, for many years a Corps of Engineers specialist on river and harbor work, died at Washington, D. C., Dec. 3. In 1886 he led his class at the U.S. Military Academy. The greater part of his career was devoted to river and harbor work. As an assistant to The District of Columbia Commission just before the first world war, he was responsible for the development of the arterial road system in the District.

Gerald V. Cruise, 56, consulting civil engineer to the International World Bank in Washington, and formerly a trustee of the N. Y. State Power Authority, died in New York City, Dec. 9. He was a 1916 C.E. graduate of Manhattan College. He had been associated with the J. G. White Engineering Co. and with Stevens and Wood.

Fred L. MacKenzie, 70, retired Boston construction engineer, died in Concord, Mass., Dec. 1. For 25 years before his recent retirement he was associated with the Aberthaw Company, Boston.

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BY ANY COMPARISON, it's the finest engine-driven flexible shaft vibrator on the market and the best buy. Now equipped with a 6 H.P. engine, providing plenty of reserve power under all conditions, and vastly improved power take-off. Vibrator frequency (up to 7500 VPM) and amplitude are carefully balanced for maximum progress and thorough consolidation of the most economical mixes. Available with 3 vibrator heads for thin or thick sections. Shafting is furnished in 7' or 14' lengths up to 28'. Quickly adaptable to concrete rubbing, wet or dry, and drilling. Built to stand severe usage. For sale or rent at your Jackson distributor. Be sure to see it, or write for complete details.

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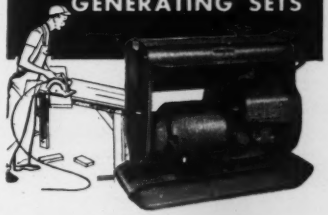


If you have a problem in power supply for a construction job; lighting an airfield or boat landing; power and light for a tourist court, summer camp or restaurant; lighting and heating country schools or churches; or for any other similar purpose, get the facts about dependable Fairbanks-Morse Generating Sets.

They are available in capacities from 600 to 35,000 watts, A.C. or D.C., and equipped with manual, remote or automatic starting devices. For details, see the Fairbanks-Morse dealer nearest you, or write Fairbanks, Morse & Co., Chicago 5, Ill.

FAIRBANKS-MORSE,
a name worth remembering

The name LORAIN is all over the map...

Wherever you put a Lorain to work, there is a Lorain distributor nearby backing up your job. In terms of time, the average Lorain owner is never more than a few hours from a Lorain parts-service center. Check the names at right. Get acquainted with your Thew-Lorain distributor — you'll find him the best equipped, best informed and best stocked distributor in the shovel-crane business. Why not tear out this page and save it as a handy directory of Lorain shovel-crane headquarters.

ALABAMA
Leary & Owens Machinery Co., Inc.
Birmingham and Montgomery

ARIZONA
Lee Redman Equipment Co.
Phoenix

ARKANSAS
Little Rock Road Machinery Co., Inc.
Little Rock

CALIFORNIA
Coast Equipment Company
San Francisco
LeRoi-Rix Machinery Company
Los Angeles, Bakersfield and Long Beach

COLORADO
McCoy Company
Denver, Sterling, Monte Vista and Grand Junction

CONNECTICUT
Friedman Equipment Co., Inc.
Bridgeport

FLORIDA
Clewiston Motor Company
Clewiston
Shelley Tractor & Equipment Co.
Miami and Key West
Vern Wheeler Equipment Co.
Jacksonville

GEORGIA
Yancey Bros. Company
Atlanta and Augusta

IDAHO
Southern Idaho Equipment Co.
Idaho Falls, Boise and Twin Falls

ILLINOIS
John Fabick Tractor Co.
Marion, Salem and Flora
R. C. Larkin Company
Chicago and Rockford
Peoria Tractor & Equipment Co.
Peoria

INDIANA
Stockberger-Seastrom, Inc.
Ft. Wayne and Indianapolis
Roy C. Whayne Supply Co.
Evansville

IOWA
Hawkeye Machinery Co.
Des Moines
Martin-Roasa Tractor & Equipment Co.
Cedar Rapids and Davenport
Missouri Valley Machinery Co.
Sioux City

KENTUCKY
Roy C. Whayne Supply Co.
Louisville, Paducah and Ashland

LOUISIANA
Boyce-Harvey Machinery, Inc.
Baton Rouge, Morgan City and New Orleans
Louisiana Machinery Co., Inc.
Monroe and Shreveport

MAINE
H & M in Maine
Portland and Veazie

MARYLAND
Freeland Equipment Co.
Baltimore

MASSACHUSETTS
Eastern Equipment Sales
Springfield
Tractors, Inc.
Newton Highlands

MICHIGAN
W. H. Anderson Co., Inc.
Detroit
Drott Tractor Co., Inc.
Iron River
O'Neil Equipment Company
Muskegon

MINNESOTA
K. B. Supply Company, Inc.
Hibbing
Minneapolis Equipment Co.
Minneapolis

MISSISSIPPI
Southern Equipment Sales, Inc.
Jackson

MISSOURI
Bublitz Machinery Co.
No. Kansas City and Wichita
John Fabick Tractor Co.
St. Louis, Sikeston and Jefferson City
Martin-Roasa Tractor & Equipment Co.
Hannibal

MONTANA
Central Machinery Company
Great Falls and E. Havre
Mountain Tractor Company
Missoula and Kalispell
Tractor & Equipment Co.
Sidney, Glasgow and Miles City

NEBRASKA
Lincoln Equipment Co.
Lincoln and Grand Island
Missouri Valley Machinery Co.
Omaha
Nebraska Machinery Co.
North Platte and Scottsbluff

NEVADA
General Equipment Company
Reno

NEW HAMPSHIRE
Casellini-Venable Corp.
Concord

NEW JERSEY
Ehrbar Equipment Company
Union

NEW MEXICO
J. D. Coggins Company
Albuquerque

NEW YORK
Edward Ehrbar, Inc.
Brooklyn and Westbury, L. I.
T. E. Potts Equipment Co.
Buffalo
L. B. Smith, Inc.
Syracuse and Albany

NORTH CAROLINA
Carolina Tractor & Equipment Co.
Salisbury and Asheville
Gregory-Poole Equipment Co.
Raleigh and New Bern

NORTH DAKOTA
Northwestern Equipment, Inc.
Fargo

OHIO
Highway Equipment Co.
Cincinnati and Dayton
Ohio Machinery Company
Cleveland, Columbus, Toledo, Youngstown and Cadiz

OKLAHOMA
Leland Equipment Company
Tulsa and Oklahoma City

OREGON
P. L. Crooks & Company, Inc.
Portland

PENNSYLVANIA
Atlas Equipment Corporation
Pittsburgh
L. B. Smith, Inc.
Camp Hill, Harrisburg and Philadelphia

RHODE ISLAND
Tractors, Inc.
Providence

SOUTH CAROLINA
Jeff Hunt Machinery Co.
Columbia, Charleston and Greenville

TENNESSEE
Dalrymple Equipment Co.
Memphis
R. L. Harris, Inc.
Knoxville and Chattanooga
Thompson & Green Machinery Co.
Nashville

TEXAS
Tom W. Carpenter Equipment Co.
Amarillo
Conlan Tractor Company
Abilene
Equipment Supply Co., Inc.
El Paso
Head & Guild
Houston
Holt Equipment Company
Weslaco
Wm. K. Holt Machinery Co.
San Antonio and Corpus Christi
Shaw Equipment Company
Dallas

UTAH
H. H. Nielson Co.
Salt Lake City

VERMONT
Casellini-Venable Corp.
Barre

VIRGINIA
Carter Machinery Co., Inc.
Roanoke
Virginia Tractor Company
Richmond, Norfolk and Waynesboro

WASHINGTON
Andrews Equip. Service of Washington, Inc.
Spokane
A. H. Cox & Company, Inc.
Seattle, Wenatchee and Tacoma
Yukon Equipment, Inc.
Seattle

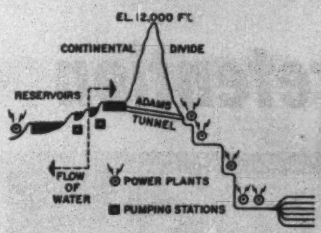
WEST VIRGINIA
Statewide Equipment Co.
Charleston and Clarksburg

WISCONSIN
Drott Tractor Co., Inc.
Milwaukee and Rice Lake

WYOMING
Wortham Machinery Co.
Cheyenne, Casper and Rock Springs

THE THEW SHOVEL CO., THEW LORAIN **LORAIN, OHIO**

Colorado Big Thompson Project



Here's how water will be tunnelled from West to East below the Continental Divide in one of America's spectacular construction projects of today!

ADLER CONSTRUCTION CO., Loveland, Colo., use their Lorain 820-I with a 70 ft. boom to handle concrete buckets on the construction of one of the many concrete structures on the Colorado-Big Thompson Project.

The Colorado-Big Thompson Project is "big" in every way. It's a $150,000,000 Bureau of Reclamation project, that will gather waters on the west slope of the Continental Divide at the source of the Colorado River, 1-1/2 miles above sea level. Water will be transferred through a 13.1 mile long tunnel beneath the Divide to the eastern slope, to feed irrigation systems in northeastern Colorado. The entire job involves 47 million yards of embankment and excavation, 15 dams, 7 dikes, 10 reservoirs, 24 tunnels, 6 power plants, plus a multitude of pumping stations, canals, siphons and other construction projects. On this mammoth job you will find practically every kind of construction, every kind of material handling, every kind of material to be moved! Contractors on this huge project are using many Lorains . . . as shovels, draglines, cranes . . . on crawler and rubber tire mountings.

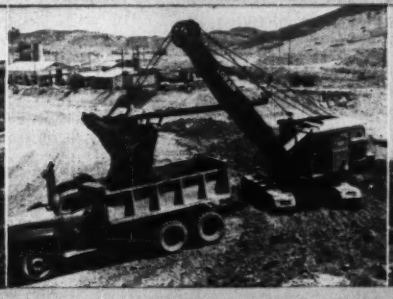
Big jobs like this one are made up of many individual operations . . . and that is an important reason why Lorain *selection unlimited* can best fill the needs of contractors — large or small. There are shovel sizes from 1/2 to 2-yd. classes . . . crane capacities up to 45-tons . . . plus the world's most complete selection of mounting types to suit every working condition.

Big jobs—or small—it will be well worth your while to present every shovel-crane problem to your nearby Thew-Lorain Distributor. He can help you make more money on every bid.

THE THEW SHOVEL CO., LORAIN, OHIO

WINSTON BROS., St. Paul, Minn., have a $10 million dollar contract. They don't gamble with performance—this Lorain 50-I dragline with 1 yd. bucket is shown working on a 3-1/2 mile section of a feeder canal.

WINSTON BROS. make a quick switch with their Lorain 50-I. Here the "50" is converted to a 1-yd. shovel to handle fast grading. The same machine does two jobs, by a simple front-end change.

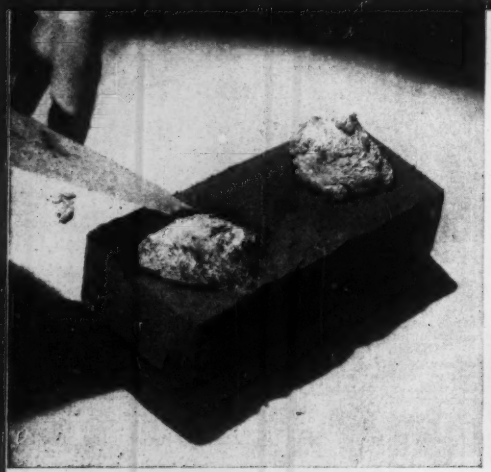


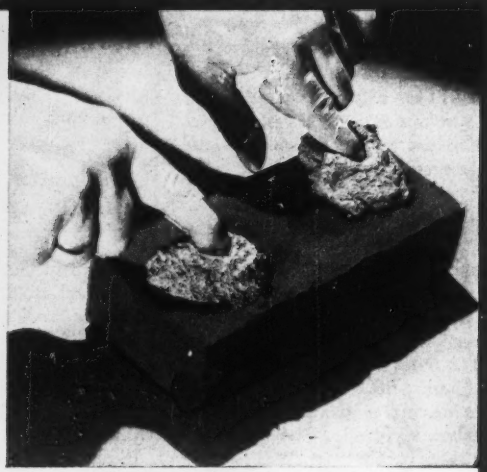
A 25-ton Lorain Moto-Crane, Model MC-504W, is another important unit in the WINSTON BROS. fleet. It highballs on the job at 30 m.p.h. speeds. Here, it is shown setting a 4750 lb. I-beam for storage tank construction.

THEW-LORAIN®

BRIXMENT MORTAR

has better water-retention





Here's the way to test for high water-retention. Slap a small dab of any two mortars onto a brick. Wait a minute, then feel each dab. The one that stays plastic longest will be the one having the highest water-retention. Try this with Brixment mortar!

—AND HIGH WATER-RETENTION IS ESSENTIAL TO WELL-BONDED, WATERTIGHT MASONRY

Water-retaining capacity is the ability of a mortar to retain its moisture, and hence its plasticity, when spread out on porous brick. ● High water-retaining capacity is of *extreme importance* in mortar. If the mortar does not have high water-retaining capacity, it is too quickly sucked dry by the brick; the mortar stiffens too soon, the brick cannot be properly bedded, and a good bond cannot be obtained.

Brixment mortar has extremely high water-retaining capacity. It strongly resists the sucking action of the brick. Brixment mortar therefore stays smooth and plastic longer, when spread out on the wall. *This permits a more thorough bedding of the brick, and a more complete contact between the brick and the mortar.* The result is a better bond, and hence a stronger and more *water-tight wall.*

Louisville Cement Company, *Incorporated*, Louisville 2, Kentucky.

CONSTRUCTION REPORTS

Bids Asked—Low Bidders—Contracts Awarded—First Section

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 36, N. Y.
ELSIE EAVES, Manager — *J. A. MAHONEY, Reports* — *M. R. ROESSLER, Statistics*

NEW ENGLAND

BIDS ASKED—BUILDINGS

Mass., Adams — SCHOOL — B.A. 12/23 — Town, School Dpt., J. F. Fazzeli, supt., Commercial St., Memorial High School, $500,000. James A. Britton, 315 Federal St., Greenfield, archt.

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION

† **Delaware**—B.A. On or About 1/13—U. S. Eng., 121 N. Broad St., Phila., 1, Pa., maintenance dredging to provide a channel 6 ft. deep, 200 ft. wide, in Delaware Bay entrance in Inland Waterway-Rehobeth Bay to Delaware Bay, Delaware, known as Roosevelt Inlet, from deep water in Delaware Bay at outer end of jetties to deep water in Inland Waterway, Civ Eng 36-109-53-22. CD 11/24.

† **Del., Dover**—TRANSFORMER STATION, etc.—B.A. On or About 1/15—U. S. Eng., 121 N. Broad St., Phila., 1, Pa. transformer station and electrical distribution and street lighting sys., Dover Air Force Base, ENG 36-109-53-312. CD 9/13/51.

† **N. J., Wrightstown**—HANGARS, etc.—B.A. On or About 1/22—U. S. Eng., 121 N. Broad St., Phila. 1, Pa., readiness hangars (2 units) at McGuire Air Force Base, ENG 36-109-54-267. CD 9/13/51.

BIDS ASKED—BUILDINGS

† **Pa., Marietta** — WAREHOUSE — B.A. 12/23—U. S. Eng., 24 St. and Maryland Ave., Baltimore, Md., 200x600 ft. concrete, concrete block, steel Warehouse No. 21, Marietta Transportation Corp Depot, Serial Eng 18-020-53-36. Plans deposit $10. CD 12/2.

† **Pa., Letterkenny**—IGLOOS—B.A. On Or About 1/7—U. S. Eng. 24 St. and Maryland Ave., P. O. Box 1715, Baltimore 3, Md., const one hundred 26x81 ft. rein.-con. underground magazines (igloos), incl. membrane waterproofing earth mounding, seeding, lightning protection; const. approaches to igloos of limerock base course, penetration macad., surf. course; install corrugated metal pipe culverts; const. sub-drains, ditches; electrical work for flood lights to be installed by others, at Letterkenny Ordnance Depot, Serial No. ENG 18-020-53-37. Plans deposit $10. CD 11/28/5.

D. C., Wash.—APARTMENT—Bids Asked—Louis Richman, Inc., 1820 Blagdon Terrace N. W., 57-unit apartment, 3047 16 St. N. W. $700,000. Edwin Neihe, 927 15 St. N. W., archt. CD 9/26.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

NEW YORK—State Dpt. P. Wks. The Governor Alfred E. Smith State Office Bldg., Albany,

D. W. Winkelman Co., Inc., Heffernan Bldg., Syracuse, N. Y. LB $675,441, est. $788,000, New York State Thruway, Ontario Sect. Sub. 2 (Stone Church Rd.-Tyre), Magee-Clyde Pt. 1A, Thy. 2.224 mi., Acc. 0.39 mi. O.T. 52-20, S.H. 52-18, Seneca Co. Bids Dec. 4. CD 11/13.

MacLean Grove Co., Inc., Grand Central Terminal, New York, N. Y., LB $165,795, est. $102,436, Niskayuna Barge Canal Lock 7 sending and installing lock gates and misc. work U.S. 88, Schenectady Co., NEW YORK. State Dpt. P. Wks., The Governor Alfred E. Smith State Office Bldg., Albany, N. Y. Bids Dec. 4. CD 11/13.

▲ **NEW YORK**—State Dpt. P. Wks., The Governor Alfred E. Smith State Office Bldg., Albany,

Bero Eng. & Constr. Corp., McKinley Bldg., Buffalo, N. Y., LB $488,846, est. $524,000, New York State Thruway, Ontario Sect.-Sub. 6A (Leroy-Rte. 19 Interchange), 2.59 mi. O.T. 52-19, Genesee Co.;

Frank Mascali & Sons, Inc., 120 St. and 31 Ave., Flushing, N. Y., LB $734,637, est. $782,000, Van Wyck Expressway, Van Wyck Expressway Conn., Grand Central Parkway, Cont. 15, 5.78 mi. FA. VWE. 52-1, FA. GCP. 52-1, Queens Co.;

Brunner Asphalt Constr., Inc., 237 Kensington Ave., Buffalo, N. Y., LB $67,292, est. $70,000, City of Buffalo, Delaware Ave. 1.63 mi. FAC. 52-6, Erie Co.;

D. W. Winkelman Co., Inc., Heffernan Bldg., Syracuse, N. Y. LB $3,849,036, est. $4,543,000. New York State Thruway-Ontario Sect. Subs. 7A, 7B, 8A, 8B (Winslow Rd.-Rte. 15); Reed Rd.; East River Rd.; Farrell Rd.; Rochester-Scottsville, Pt. 2, S.H. 79, Thy. 2.84 mi., Acc 2.2 mi. OT. 52-18, ST. 52-31, RC. 52-115, Monroe Co.;

John Arborio, Inc., West Cedar St., Poughkeepsie, N. Y., LB $1,117,575, est. $1,265,000, Palisades Interstate Parkway, Pt. 1 and 2 (Rte. 45-Queensboro-Bear Mt.) Tompkins Cove-Highland Lake, SH 593, Highland Lake-Fort Montgomery, SH 5480, 5.07 mi. PIP. 52-3, PIP. 52-4P, RC. 52-114, Orange and Rockland Counties;

Savin Constr. Corp., 10 Village St., East Hartford, Conn. LB $4,065,227, est. $5,164,000, New York State Thruway-Catskill Sect. Sub. 7 (Rte. 23A to 9W); Rte. 23 Interchange; Sooky Hollow Rd.; Athens Leeds Rd.; Catskill So. Cairo, S.H. 613, Thy. 4.65 mi Acc. 2.89 mi. C.T. 52-9, ST. 52-32, R.C. 52-116, Greene Co.;

Louis Mayersohn, 36 State St., Albany, N. Y., LB $2,210,914, est. $2,658,000, New York State Thruway-Mohawk Sect.-Sub. 5 (Verona-Lowell); Vernon-Verona Sta. S.H. 1930, Augusta Rd., Lowell and Spencer Sects., S.H. 438, Tilden Hill Rd.; Town Rd.; App. to Tilden Rd., Westmoreland-Lowell Rd., Thy. 4.59 mi. Acc. 1.5 mi. M.T. 52-17, S.T. 52-33, RC. 52-117, Oneida Co. Bids Dec. 4. CD 11/17.

▲† **Ole Hansen & Sons, Inc.**, 22 N. Franklin Ave., Pleasantville, N. J., CA, $1,369,928, airfield pavements Naval Air Station, NOY 70170, Spec. 31805, ATLANTIC CITY, N. J. Dpt. Navy, Phila. Naval Base, Phila., Pa. Bids Oct. 30. CD 11/25, under LB.

MARYLAND—State Rds. Comn., 108 E. Lexington St., Baltimore, Zone 2,

Allied Contractors, Inc., 204 E. Preston St., Baltimore 2, Md. LB $190,983. single 40 ft. span, rein.-con. bridge to carry State Rte. 201 over single track of Baltimore & Ohio R.R., Contr. P 724-2-315, Prince Georges Co. Bids Dec. 2. CD 11/12.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Joseph Weinstein, Inc.**, 66 Court St., Brooklyn, N. Y. CA $1,447,000, general constr. Public School 205, Bell Blvd., 75 Ave., 217 St. and 77 Ave., Queens Boro, BAYSIDE, N. Y. Co-ordinator of School Constr., 49 Flatbush Ave. exten., Brooklyn 1, N. Y. Bids Nov. 10. CD 11/12, under LB.

▲ **Planet Constr. Co.**, 11 W. 42 St., New York 18, N. Y. CA $2,037,000, general constr. Junior HIGH SCHOOL 57, Stuyvesant and Lafayette Sts., BROOKLYN, N. Y. Co-ordinator of School Constr., 49 Flatbush Ave. exten., Brooklyn 1, N. Y. Bids Nov. 14. CD 11/18, under LB.

▲ **Warshaw Constr. Co.**, 101 Park Ave., New York 17, N. Y. LB $4,863,000. altering Brooklyn Central LIBRARY, BROOKLYN, N. Y. Dpt. P. Wks., Municipal Bldg., New York 7, N. Y. Bids Oct. 22. CD 10/22.

▲ **Maran Constr. Co.**, 1910 Arthur Ave., New York 57, N. Y. CA $1,732,000, general constr. Flushing HIGH SCHOOL addn., FLUSHING, N. Y. Co-ordinator o. School Constr., 49 Flatbush Ave. exten., Brooklyn 1, N. Y. Bids Nov. 18. CD 11/25, under LB.

▲ **Brady Constr. Co., Inc.**, 606 W. 47 St., New York 19, N. Y., CA $1,842,000, general constr. Junior HIGH SCHOOL 190, Proj. E-694, Austin St. and 68 Ave., FOREST HILLS, N. Y. Bd. Educ., Bureau Constr., 49 Flatbush Ave. exten., Brooklyn 1, N. Y. Bids Nov. 6. CD 11/12, under LB.

Planet Constr. Co., 11 W. 42 St., New York 18, N. Y., CA $692,000, general constr. Public School 162, 53 Ave. between 201 and 202 Sts., Queens Boro, OAKLAND. N. Y. Co-ordinator of School Constr., 49 Flatbush Ave. exten., Brooklyn 1, N. Y. Bids Nov. 12. CD 11/18, under LB.

▲ **Leimbach Constr. Co.**, 3906 Hickory Ave., Baltimore, Md. CA $1,017,220. est. $1,400,000. Elmer A. Henderson Elementary SCHOOL, Wolfe, Biddle, Washington and Chase Sts., BALTIMORE, MD. City, Bureau Bldg. Constr., 410 Municipal Bldg., Baltimore, Md. CD 11/26, under LB.

PROJECTS COVERED

Projects—By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $34,000; other public works $60,000; industrial buildings $82,000; other buildings $300,000.

Classes of Construction

(Name in order of Listing)

Water Supply
Sewers, Waste Disposal
Bridges
Streets & Roads
Earthwork, Waterways
Latin America
Public Buildings
Commercial Buildings
Industrial Buildings
Unclassified

Stages Reported

PROPOSED WORK: Including appointment of engineers or architects.

BIDS ASKED (new announcements only). For full calendar, see also preceding issues of ENR.

LOW BIDDERS: On jobs below $500,000 value all low bidder news will be the final reports published on the projects invloved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

CONTRACTS AWARDED: Except awards to low bidders previously reported in low bidder stage.

Dates shown are of issue in which last previous report was published.

Symbols and Abbreviations Include:

† Federal Government
▲ Project of $1,000,000 or over.
B.A. Bids Asked
ENR Engineering News-Record
CD Engineering News-Record Construction Daily

SOUTH

BIDS ASKED—HEAVY CONSTRUCTION

† **Fla., West Palm Beach**—PARACHUTE BLDG., etc.—B.A. On Or About 1/13—U. S. Eng., P.O. Box 4970, Jacksonville, parachute building, supply office, guard house addn., bottled gas storage, Palm Beach International Airport, about 2.5 mi. west of here, Serial No. ENG 08-123-53-40.

† **S. C., Charleston**—WALKS, ROADS, etc.—B.A. 1/14—Sixth Naval Dist., Charleston, walks, roads, parking area, Naval Ammunition Depot. Plans deposit $10. CD 7/15/49.

BIDS ASKED—BUILDINGS

S. C., Cowpens, Pacolet, Blacksburg—HOUSING—B.A. 12/23—South Carolina Regional Housing Auth. No. 1, Laurens, housing, Projects SC 8-41, SC 8-42, SC 8-43, SC 8-44, SC 8-17 and SC 8-18, 123 units. $900,000. James M. Hunt, Elberton, Ga., archt. CD 4/1/52 and 7/25/51.

S. C., Iva, Pendleton and Westminister—HOUSING—B.A. 12/23—South Carolina Regional Housing Auth. No. 1, Laurens, 94 units housing, Projects SC 8-27-28-23-24-33-34. $750,000. James M. Hunt, Elberton, Ga. CD 4/1, under S. C., Pendleton.

S. C., Saluda—HOUSING—B.A. 12/23—South Carolina Regional Housing Auth. No. 1, Laurens, 74 unit housing, Projects SC 8-25, 26, 29, 30, 15, 16, Calhoun Falls and Trenton $600,000. James M. Hunt, Elberton, Ga., archt. CD 4/1.

Miss., Bay St. Louis—HOUSING—B.A. 1/6—Bay St. Louis Housing Auth., housing, Projs. Miss. 64-1 and Miss. 64-2.

Ala., Brookside—HOUSING—B.A. 1/8—Jefferson Co. Housing Auth., Frank Nelson Bldg., Birmingham, Ala. housing, Project ALA 86-3, incl. 82 units, $700,000. CD 10/28.

▲ **La., New Orleans**—HOUSING—B.A. 1/13—New Orleans Housing Auth., 1111 Tulane Ave., housing Proj. etc. LA 1-14, $4,000,000. CD 9/15/49.

▲ **Fla., Miami**—HOUSING—B.A. 1/14—Miami Housing Auth., 327 N.W. 62 St., 512 housing units, $4,000,000. Plans deposit $50. Extended date. CD 11/28.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲† **Faulk & Coleman**, Woodville Hy., Tallahassee, Fla., LB, $2,079,644, Item No. 1;

Duval Eng. & Contg. Co., 1746 E. Adams St., Jacksonville, Fla., LB, $2,346,385, Item No. 2; $2,147,312 Item No. 3; $1,977,435, Item No. 4; $0.38 a cu. yd. Item No. 5, airfield pavements at Advanced Combat Information Center, Glynco, NOY 72873, BRUNSWICK, GA. Dpt. Navy, Officer in Charge of Construction, Box 465 Naval Base, S. C. Bids Dec. 3. CD 11/6.

▲† **Gahagan Constr. Co.**, 90 Broad St., New York, N. Y., CA, $2,268,801, 17 mi. Levee 7, Part of Central and Southern Florida Flood Control, Morehaven, Palm Beach Co., Civeng 08-123-53-15. FLORIDA, U. S. Eng., P. O. Box 4970, Jacksonville, Fla. Bids Nov. 18. CD 11/26, under LB.

† **Eaton & Elzea Constr. Co.**, Panama City, Fla., LB $325,261, airmen's service club, Inv. 53-20, EGLIN AIR FORCE BASE, FLA. U. S. Eng., P. O. Box 1169, Mobile 7, Ala. Bids Nov 26. CD 11/18.

Russell Housemovers, Inc., 7250 N.W. 1st Ave., Miami, Fla., CA. $248,884, relocating bldgs. at Miami International Airport, MIAMI, FLA. Dade Co., Court House, Miami, Fla. Bids Nov. 6. CD 10/29.

† **Smith Engr. & Constr. Co.**, P. O. Drawer 1831, Pensacola, Fla., CA, Schedule 1, $763,790, aviation fuel storage, etc.; CA, $378,439 Schedule 2, storm drainage, Naval Air Station PENSACOLA, FLA. Officer in Charge of Constr. Bldg. 45, U. S. Naval Air Station, Pensacola, Fla. CD 10/10, under LB.

Florida State Bd. Control, Bldg. 3, University of Florida, Gainesville, Fla. rejected bids Nov. 20, Ringling Museum addn., SARASOTA, FLA. LB $124,977. CD 12/2, under LB.

† **U. S. Eng.**, P.O. Box 4970, Jacksonville, Fla. cancelled bids to have been opened Nov. 26, addn. water and sewerage facilities, paving, Palm Beach International Airport, Inv. 53-25, WEST PALM BEACH, FLA. CD 10/29.

† **Ace Mining & Contg. Co.**, Rector Bldg., Little Rock, Ark. CA $100,516. excav. in Tallahatchie River Canal, MISSISSIPPI. U. S. Soil Conservation Service, Dpt.

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BETTER
CHEAPER
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REINFORCING BARS and accessories
STRUCTURALS—channels, angles, beams, etc.
PLATES—sheared and U. M., Inland 4-Way Floor Plate
SHEETS—many types & coatings
TUBING—incl. welded structural
EXPANDED METAL—std. & flattened
STEEL SPIRALS, CAISSON RINGS, ETC.

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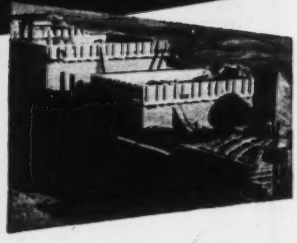
Plants at: New York, Boston, Philadelphia, Detroit, Cincinnati, Cleveland, Pittsburgh, Buffalo, Chicago, Milwaukee, St. Louis, Los Angeles, San Francisco, Seattle, Spokane

BONDS— for Contractors

FAST, COUNTRY-WIDE SERVICE



● BONDS—Bid and Performance
● Equipment Floaters
● Complete Casualty Insurance Requirements

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Agents and Brokers Everywhere

Agriculture, P.O. Box 60, New Albany, Miss. Bids Nov. 25. CD 11/11.

W. & S. Constr. Co., Deposit Guaranty Bank Bldg., Jackson, Miss. CA $350,385. WW imprvs., VICKSBURG, MISS. City, Vicksburg, Miss. Bids Nov. 26. CD 11/12.

† **Massman Constr. Co.**, 1221 Baltimore St., Kansas City, Mo. CA $129,070. 2,200 lin. ft. board revetment on Red River, Bossier City, Inv. 53-88, LOUISIANA. U. S. Eng., foot of Prytania St., New Orleans, La. CD 6/26/46.

LOUISIANA—State Hy. Dpt., Highway Office Bldg., Baton Rouge.

T. L. James & Co., Ruston, La. CA $561,421. patching, wid'n. 14 mi. Welsh-Mermentau Hy., State Rte. 2, Jefferson Davis Parish. CD 11/28, under LB.

▲ † **T. L. James & Co.**, Ruston, La. CA $2,284,170. concrete apron extens. and overlay paving at Barksdale Air Force Base, Inv. 53-30, SHREVEPORT, LA. U. S. Eng., 300 Broadway, Little Rock, Ark. CD 12/3, under LB.

▲ **Universal Concrete Pipe Co.**, 297 S. High St., Columbus, O. and **Central Contg. Co.**, Shawnee Park, Louisville, Ky. LB, $1,218,000. 60 in. rein.-con. water main, main pumping plant to Bardstown Rd., LOUISVILLE, KY. Louisville Water Co., S. Third St., Louisville, Ky. Bids Dec. 3. CD 11/14.

Crescent Amusement Co., 415 Church St., Nashville, Tenn. Owner Builds. $100,000, drive-in theater, White Bridge Rd., NASHVILLE, TENN. CD 6/17/49.

BUILDINGS

LOW BIDS AND CONTRACTS

J. A. Jones Constr. Co., 209 W. 4 St., Charlotte, N. C. CA. Approx. $750,000. convert garage into OFFICE, CHARLOTTE, N. C. Addison Co., c/o contractor.

R. K. Stewart & Sons, High Point, N. C. CA. $138,630, WAREHOUSE, HIGH POINT, N. C. Allison-Erwin Co., c/o contractor.

Wm. B. Dillard, Sylva, N. C., LB, $526,000 combination elementary and high SCHOOL, CLEVELAND, GA. White Co. Bd. Educ., Cleveland, Ga. Bids Dec. 3. CD 11/5.

Taylor Constr. Co., 2875 N. Lejeune Rd., Miami, Fla. CA $101,774. WAREHOUSE, HIALEAH, FLA. Lloyd L. Ruskin, c/o contractor.

North Shore Jewish Center, c/o M. Tony Sherman, archt., 625 N.E. 78 St., Miami, Fla., rejected bids Nov. 14, RECREATION BLDG. addns., MIAMI BEACH, FLA. CD 11/6.

Guild Homes, 3142 Coral Way, Miami, Fla., Owner Builds, $700,000, 80 RESIDENCES, NORTH MIAMI, FLA.

▲ **Arnold Constr. Co.**, Palm Beach, Fla., LB, $1,287,577, 58th Street HIGH SCHOOL, ST. PETERSBURG, FLA. Pinellas Co. Bd. P. Instruction, 305 Haven St., St. Petersburg, Fla. Bids Nov. 26. CD 10/31.

A. P. Hennessy & Son, P. O. Box 189, Station A, St. Petersburg, Fla., CA, $685,900, Mound Park HOSPITAL addns., ST. PETERSBURG, FLA. City, City Hall, St. Petersburg, Fla. Bids Oct. 15. CD 10/28, under LB.

▲ **Ray M. Lee Co.**, 1004 Edgewood Ave., Atlanta, Ga., CA, $2,682,812, State OFFICE bldg., MONTGOMERY, ALA. State Building Comn., State Capitol, Montgomery, Ala. Bids Dec. 2. CD 12/8, under LB.

Gurtler, Hebert & Co., 1350 Jefferson Hy., New Orleans, La. LB $309,023. WAREHOUSE and SHOP, NEW ORLEANS, LA. T.S.C. Motor Freight Co., Elysian Fields Ave., New Orleans, La. Bids Nov. 19. CD 11/11.

Gervais F. Favrot Co., Balter Bldg., New Orleans, La. CA EST. $650,000. auto parking GARAGE, NEW ORLEANS, LA. Essex Corp., c/o contractor.

Batson Constr. Co., Nashville Trust Bldg., Nashville, Tenn., CA $389,989, 50 HOUSING units, LEBANON, TENN. Lebanon Housing Auth., Lebanon, Tenn. Bids Dec. 2. CD 11/26.

▲ **Shelby Const. Co.**, 1106 Canal St., New Orleans, La., CA. $4,258,630. 572 HOUSING units, MEMPHIS, TENN. Memphis Housing Auth., 264 N. Lauderdale St., Memphis, Tenn. Bids Nov. 25. CD 11/6.

Sam P. Maury Constr. Co., 554 Adams St., Memphis, Tenn. CA. Approx. $350,000. YOUTH AUDITORIUM, MEMPHIS, TENN. Memphis Union Mission, Inc., 107 Poplar Ave., Memphis, Tenn.

Bainbridge Realty Co., Stahlman Bldg., Nashville, Tenn. Owner Builds. $850,000. 125 RESIDENCES, NASHVILLE, TENN.

MIDDLE WEST

BIDS ASKED—HEAVY CONSTRUCTION

† **Wis., Madison**—DRAINAGE DITCHES, etc.—B.A. About 12/24—U. S. Eng., 428 Federal Bldg., Milwaukee, rehabilitation of main drainage ditches and relocation of portion of Main West Drainage Ditch, Truax Air Force Base, ENG 47-013-53-24. CD 6/27/51.

† **Wis., Madison**—ADMINISTRATION BLDG.—B.A. 12/30—U. S. Eng., 428 Federal Bldg., Milwaukee, Zone 1, admin. bldg. incl. exterior utilities, walks, parking area, Truax Air Force Base, Serial No. ENG 47-013-53-28. CD 12/2.

BIDS ASKED—BUILDINGS

† **O., Toledo**—FIREPROOFING WAREHOUSES—B.A. On Or About 1/13—U. S. Eng., 237 Fourth Ave., Huntington 18, W. Va., fireproofing Warehouses Nos. T-1 and T-2, Rossford Ordnance Depot, in Wood Co., approx. 7 mi. south of City of Toledo, Serial No. ENG 46-022-53-28.

SOON LETS CONTRACT—BUILDINGS

O., Cincinnati—MOTEL—Auto Lot, Inc., c/o James Fergus, 6890 Crystal Springs Ave., soon lets contract 37-room brick, steel Town Center Motel, Central Parkway. $750,000. Extended date. Potter, Tyler, Martin & Roth, 35 E. 7th St., archts. James E. Allan, 914 Main St., engr. CD 12/3.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Western Hills Apartments, Inc.**, Chillicothe, O., Own Forces. $1,300,000. 160 FHA-approved HOUSING units near Atomic Plant, CHILLICOTHE, O.

▲ **Chillicothe Manor, Inc.**, Chillicothe, O. Own Forces. $1,200,000. 140 FHA-approved HOUSING units near Atomic Plant, CHILLICOTHE, O.

▲ **Jackson Heights, Inc.**, Jackson, O. Own Forces. $1,250,000. 155 HOUSING units, near Atomic Plant, JACKSON, O.

▲ **Forest Heights Co.**, Portsmouth, O., Own Forces. $1,000,000. 134 HOUSING units for Atomic Plant, PORTSMOUTH, O.

▲ **Bahre & Co., Inc.**, 13200 West Ave., Cleveland, O. CA. $2,000,000. 60 brick, ranch-type HOUSES, Hilliard and Spencer Rds., ROCKY RIVER, O. Norbert P. Kelly, 22350 Hilliard Rd., Rocky River, O.

▲ **Shelby Constr. Co., Inc.**, 1108 Canal St., New Orleans, La., Own Forces. $1,200,000. 115 DWELLINGS near Atomic Plant, WAVERLY, O.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION

† **South Dakota**—SUB-STATION—B.A. 12/30—Bureau Reclamation, Dpt. Interior, Huron, const. Weaver Sub-station, Transmission Div., Missouri River Basin Proj., in the SW¼ of Sect. 6 and in the NW¼ of Sect. 7, T. 2 N., R. 9 E., Meade Co., approx. 8 mi. northeast of Rapid City. Spec. DC 3849. CD 5/25/44.

† **Minn., Minneapolis**—FIRING RANGE—B.A. 1/6—U. S. Eng., 1709 Jackson St., Omaha, Neb., rehabilitation of firing range at Twin Cities Arsenal, Inv. 25-066-53-74. CD 8/20/52, under Public Bldgs.

▲ **Mo., St. Louis**—PARKING APRONS—B.A. 1/6—City, Frank J. McDevitt, pres. Bd. P. Service, 304 City Hall, 12 and Market Sts., Zone 3, parking aprons, taxiways Lambert-St. Louis Municipal Airport adjacent to proposed new admin. bldg. on Natural Bridge Road near Brown Rd., St. Louis County, $1,297,860. CD 2/19/52.

† **North Dakota**—B.A. 1/20—U. S. Eng., Fort Lincoln, P. O. Box 300, Bismarck, constr. approx. 20 mi. highway on Fort Berthold Indian Reservation, on Rte 19, at point 17 mi. south of State Hy. 23 west of Sanish and extends 20 mi. west, Serial No. CIVENG 32-015-53-21.

† **South Dakota**—B.A. 1/30—U. S. Eng., 1709 Jackson St., Omaha, Neb., powerhouse substructure and intake structure, spillway and earthwork, Stage II, Gavins Point Proj. near Yankton, Inv. 25-066-53-155. CD 12/3.

BIDS ASKED—BUILDINGS

Ark., Fort Smith—PLANT—B.A. 12/30—Harding Glass Co., 2524 N. 11 St., plant addn., $150,000, Bassham & Wheeler, Kennedy Bldg., archts. CD 12/3.

▲ **Tex., El Paso**—OFFICE—B.A. 1/8—El Paso Natural Gas Co., Bassett Tower, 16 story, bsmnt., office. $2,250,000. Extended date. Edwin B. Carroll & L. Daeuble, Jr., 1001 E. Yandell Blvd., archts. CD 11/25.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Prairie Grove Telephone Co., Prairie Grove, Ark. Owner Builds. Est. $150,000. telephone lines, PRAIRIE GROVE, ARK.

▲† **Metropolitan Paving Co.**, 300 S. Indiana St., Oklahoma City 4, Okla., CA. $2,857,597, est. $2,835,920, runways, taxiways, Eng. 34-066-53-21, ALTUS, OKLA. U. S. Eng., Box 61, Tulsa, Okla. Bids Nov. 13, awarded Nov. 28. CD 11/18, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

Standard Constr. Co., Hamm Bldg., St. Paul, Minn. CA $746,550, general contract NURSES HOME, 640 Capitol Blvd., ST. PAUL, MINN. Bethesda Hospital, P. Andreen, chn. Bldg. Comn., Mankato, Minn. Bids Nov. 25. CD 10/28.

▲ **W. M. C., Inc.**, Winona, Minn. LB $1,384,000. Public HOUSING, WINONA, MINN. Winona Housing & Redevelopment Auth., F. W. Cunningham, chn., Winona, Minn. Bids Nov. 25. CD 11/5.

▲ **A. H. Neumann & Bros.**, 514 Hubbell Bldg., Des Moines, Ia., CA $3,294,773, general contract for Veterans Memorial AUDITORIUM, DES MOINES, IA. City, City Hall, Des Moines, Ia. Bids Nov. 6. CD 11/21, under LB.

Arkansas Power & Light Co., Pine Bluff, Ark. Owner Builds. $110,000. repairing electric sys., BEEBE, ARK.

C. C. Collie Jr., 610 W. 3 St., Little Rock, Ark. Owner Builds. Est. $400,000. 20 RESIDENCES, LITTLE ROCK, ARK.

Jack Nance, Texarkana, Ark., CA. $100,000. PLANT, NASHVILLE, ARK. Case Shear Co., Fremont, O. CD 3/4.

▲ † **Maxey & Leftwich**, Box 108, Lubbock, Tex., CA. $4,198,000. AMMUNITION STORAGE FACILITIES, Second Increment, Hasting Ammunition Depot, Spec.

(Continued on page 85)

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Widths, 5" to 30"
Sizes: 2" to 12"

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- Requires less excavating for installation
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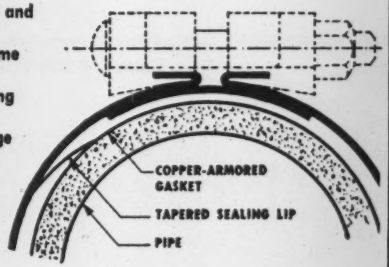

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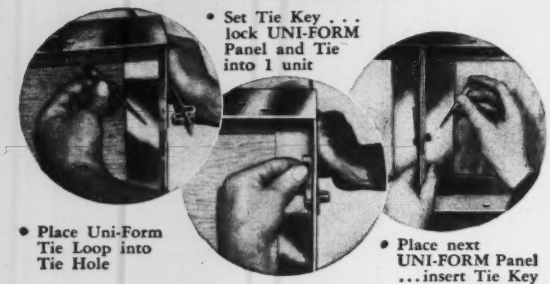
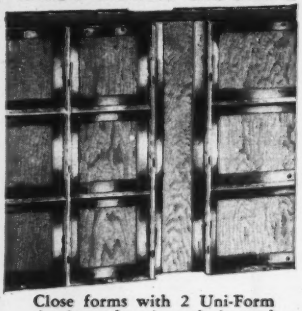
SIMPLE ASSEMBLY



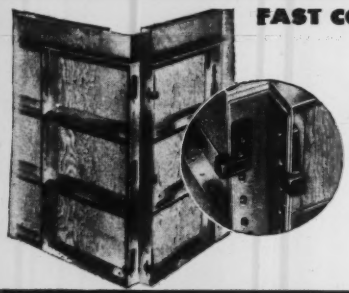
- Set Tie Key . . . lock UNI-FORM Panel and Tie into 1 unit
- Place Uni-Form Tie Loop into Tie Hole
- Place next UNI-FORM Panel ...insert Tie Key ...assembly is complete!

EASY FORM CLOSURE

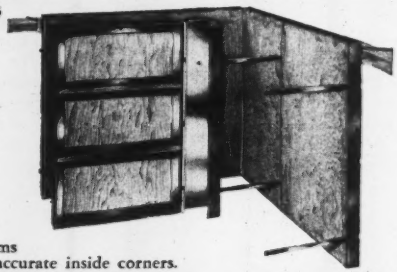


Close forms with 2 Uni-Form Angles and a piece of plywood ... Start stripping here

FAST CORNER FORMING

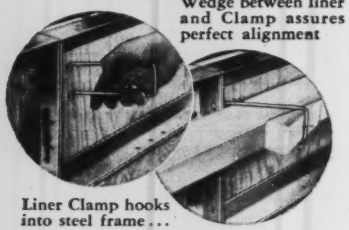


An Outside Corner Angle and Panel Loc Clamps form tight, accurate vertical corner . . . no additional tying.



Rigid Steel Corner forms provide quick...easy...accurate inside corners.

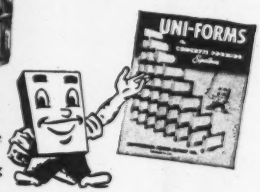
ONE SIDE ALIGNMENT AND BRACING



Wedge between liner and Clamp assures perfect alignment

Liner Clamp hooks into steel frame...

Alignment and bracing on 1 SIDE ONLY
Saves Time...
Saves Lumber...
Saves Labor...



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(Continued from page 83)

35909, HASTINGS, NEB. Ninth Naval Dist., Great Lakes, Ill. Bids Nov. 18. CD 12/5, under LB.

Bushboon & Bauh, Salina, Kan. CA $965,919. High SCHOOL, ABILENE, KAN. Bd Educ., Abilene, Kan. CD 10/28, under LB.

▲ Robbins & Robbins, 349 Greeley St., Kansas City, Kan. CA Est. $1,500,000. HOUSING and SHOPPING CENTER, KANSAS CITY, KAN. Land Investors, Bennett Bldg., Kansas City, Kan., J. W. Crute, Bennett Bldg., Kansas City, Kan., archt.

▲ † Eckert-Fair Constr. Co., 1307 Natl. City Blvd., Dallas, Tex., CA. $2,491,868 base bid 2 story bsmnt. ACADEMIC BLDG., Inv. No. Eng 34-066-53-49, FORT SILL, OKLA. U. S. Eng., Box 61, Tulsa 2, Okla., Bids Nov. 21, awarded Dec. 4. CD 12/2, under LB.

Foster Bros., 1948 Stadium Rd., Port Arthur, Tex., LB $355,333, McArthur GYMNASIUM, BEAUMONT, TEX. South Park Independent School Dist., Beaumont, Tex. Bids Nov. 25. CD 11/19.

▲ J. E. Morgan & Sons, Box 6029, Dallas, Tex., LB $1,355,521 (base bid), $1,118,237 mechanicals, incl. heating, plumbing, elec. Base SCIENCE BLDG. (Southwestern Medical School of University of Texas), DALLAS, TEX. The University of Texas, c/o Bd. Regents, Main Bldg. 205, Austin, Tex. Bid Dec. 3. CD 10/15.

A. J. Rife Constr. Co., Box 7096, Dallas, Tex., LB $722,781. 3 INDUSTRIAL bldg., Incl. 2 gas meter shops and storage, DALLAS, TEX. Dallas Housing Auth., 2525 Lucas Dr., Dallas, Tex. Bids Nov. 21.

FAR WEST

BIDS ASKED—HEAVY CONSTRUCTION

† Calif., Travis Air Force Base—OPERATIONS BLDG.—B.A. 12/26—U. S. Eng., Wright Bldg., Sacramento, squadron operations bldg., Eng 52-38, Spec. 1708.

† Calif., Beale Air Force Base—COMMISSARY—B.A. 12/30—U. S. Eng., Wright Bldg., Sacramento, commissary bldg., Beale Air Force Base, Spec. 1731. CD 1/14.

† Calif., Furnace Creek—GRADING, etc.—B.A. 1/6—Civil Aeronautics Admin., 5651 W. Manchester Ave., Los Angeles, grading, clearing, etc. other work on runway of Furnace Creek Airport, Prop. 6-53-912. CD 12/11/44.

† Idaho—B.A. 1/6—U. S. Eng., City—County Airport, Walla Walla, Wash., hoisting machinery and appurtenances for intake structure, Luck Peak Dam, CIVENG 45-164-53-54. CD 12/4.

BIDS ASKED—BUILDINGS

† Wash., North Richland — HOUSING UNITS — B.A. 12/30—U. S. Public Housing Admin., c/o V. N. Jones & Assocs., archts., Republic Bldg., Seattle, Zone 1, 65 one story, 17x42 ft. frame prefab. demountable housing units for army personnel at Camp Hanford. Plans deposit $25.

Calif., San Leandro — HOSPITAL WARD — B.A. 1/6 — Alameda Co., Court House, Oakland. Hospital Ward Bldg. B at Fairmont Hospital. Will G. Corlett & A. W. Anderson, Bank of American Bldg., Oakland, archts.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲† English Elec. Export & Trading Co. Ltd., 23 Beaver St., New York, N. Y., LB, $4,406,493, four 67,368-kva generators for Chief Joseph Dam, Inv. 53-21 WASHINGTON. U. S. Eng.,: 4735 E. Marginal Way, Seattle 4, Wash. Bids Dec. 3. CD 11/18.

CALIFORNIA—State Div. Hys., 120 S. Spring St., Los Angeles, Calif.

Justice-Dunn Co., 1260 59 St., Oakland, Calif., LB, $87,832, 4 mi. prepare, plant roadside and watering sys. on Santa Ana Freeway between Eastman Ave. and Todd Ave., Los Angeles Co;

McGuire & Hester, 796 66 Ave., Oakland, Calif. LB $343,523. sewage collection sys., BIJOU, CALIF. South Tahoe Public Utility Dist., Conley's Bijou, Bijou, Calif. Brown & Caldwell, 233 Sansome St., San Francisco, Calif., engrs.

† T. C. Bateson Constr. Co., 618 Irwin Keasler Bldg., Dallas, Tex., LB, $3,258,045, maintenance hangar and parking aprons, ENG 04-203-53-182. CASTLE AIR FORCE BASE, CALIF. U. S. Eng., 180 New Montgomery St., San Francisco, Calif. Bids Dec. 2. CD 11/6.

N. P. Van Valkenburg, 8609 San Vicente St., South Gate, Calif., CA, $585,638, 4½ mi. 45- to 51-in. modified prestressed concrete main supply line pipe, HEMET, CALIF. Eastern Municipal Water Dist., 512 W. Florida St., Hemet, Calif. Bids Dec. 2, awarded Dec. 3.

† Midwest Constr. Co., 415 S. Haskell St., Dallas, Tex., LB, $169,278, sewage treatment plant addn., Spec. 1670 TRAVIS AIR FORCE BASE, CALIF. U. S. Eng., Wright Bldg., Sacramento, Calif. Bids Nov. 26. CD 10/31.

BUILDINGS

LOW BIDS AND CONTRACTS

† Heers Associates, 2810 Market St., Riverside, Calif. LB, $353,859, BATTALION ADMINISTRATION bldgs. etc., Camp Irwin, Eng 53-51, BARSTOW, CALIF. U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif. Bids Nov. 26. CD 11/12.

H. K. Ferguson Co., 411 W. 5 St., Los Angeles, Calif., CA, $146,000, 54,000 sq. ft. Aluminum SMELTING BLDG., DOMINGUEZ, CALIF. Apex Smelting Co., 2211 Carson St., Dominguez, Calif.

Trewhitt-Schields & Fisher, 926 Parallel St., Fresno, Calif., LB, $541,000, Jefferson SCHOOL and Washington School addn., LINDSAY, CALIF. Lindsay

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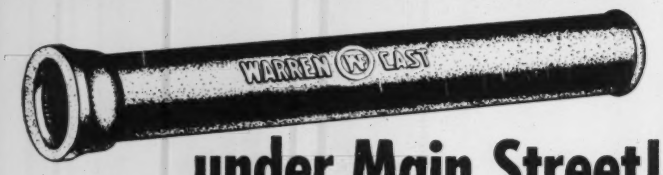

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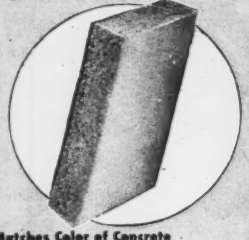

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Elementary School Dist., 250 N. Harvard Ave., Lindsay, Calif. Bids Nov. 25. CD 10/31.

▲ **The Bein Constr. Co.**, 139 S. Beverly Dr., Beverly Hills, Calif., and **R. J. Daum Constr. Co.**, 6803 West Blvd., Inglewood, Calif., LB, $1,460,400, Jordan Downs HOUSING development, Cal 4-16, LOS ANGELES, CALIF. Housing Auth. of City of Los Angeles, 1401 E. First St., Los Angeles, Calif. Bids Dec. 2. CD 11/12.

Tombleson & Huck, Inc., Salinas, Calif., LB. $464,691 SCHOOL near Ord Village, Fort Ord, MONTEREY, CALIF. Monterey City Elementary School Dist., Box 1031, Monterey, Calif. Bids Nov. 25.

▲ **Cahill Bros., Inc.**, 206 Sansome St., San Francisco, Calif., CA, $1,937,171, general contract:
M. Desiano, 1022 Buchanan St., San Francisco, Calif., CA, $507,538, plumbing and mechanical work for A. P. Giannini Junior High SCHOOL, SAN FRANCISCO, CALIF. Dpt. P. Wks., City Hall, San Francisco, Calif. Bids Nov. 26, awarded Dec. 3. CD 12/8, under LB.

CANADA

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

General Constr. Co. Ltd., Granville Island, B. C. CA. $498,000 removal of rock and earth land slide in Babine River Canyon in order to restore the Salmon Run in Skeena River System, Vancouver, BRITISH COLUMBIA, Govt. of Canada, Dpt. Fisheries, Ottawa, Ont. CD 12/21/44.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Community Enterprises Ltd.**, 619 St. James St. W., Montreal, Que., CA. Est. $2,200,000. 200 DWELLINGS, ST. JOHN, N. B. Central Mortgage & Housing Corp., 1032 Gottingen St., Halifax, N. S. Bids Sept. 24. CD 9/16.

▲ **Colonial Construction Ltd.**, 224 Drummond Bldg., Montreal, Que., Owner Builds, $1,000,000. HOUSES of bungalow type in western ward of BEACONSFIELD, QUE.

J. H. Poirier, 1290 Everette St., Montreal, Que. Owner Builds. $350,000, four 3 story, bsmnt. 42x90 ft., concrete, brick APARTMENT, Villeray St., MONTREAL, QUE. R. J. Desjardins, 3605 Hochelaga St., Montreal, Que., archt.

Foundation Co. of Canada Ltd., 1900 W. Sherbrooke St., Montreal, Que., CA. $300,000. concrete, brick WORKSHOP, MONTREAL EAST, QUE. Products Tank Line of Canada Ltd., 7 Ste. Catherine St. E., Montreal East, Que.

▲ **D. Boileau Ltd.**, 705 Beaumont Ave., Montreal, Que. CA. $1,100,000. RECREATION CENTER, incl. 2 story, 120x150 ft. rein.-con., steel structure, 2 story, 43x145 ft. structure, Blvd. Gouin, RIVIERE DES PRAIRIES (Postal Dist. Montreal), QUE. Province of Quebec, Dpt. Youth & Welfare, Parliament Bldgs., Quebec City, Que., Lapointe & Tremblay, 4151 W. Sherbrooke St., Montreal, Que., archts. CD 2/18/49.

All-Steel Buildings Ltd., 402 Harbor Comm. Bldg., Toronto, Ont., CA. $641,731, steel buildings for military base, MOSSBANK, SASK. Defence Constr. Ltd., 360 Homer St., Vancouver, B. C. J. L. Adams, c/o owner, regional engr.

Proposed Projects——

WATER SUPPLY

▲ **Mo., St. Louis**—City, Frank J. McDevitt, pres., Bd. P. Service, 304 City Hall, 12 and Market Sts., Zone 3, imprv. Howard Bend Water Works Station on Missouri River in St. Louis County, incl. steam-driven pump and enlargement of filter basin by 60 m.g. $2,000,000. CD 4/26/43.

▲ **O., Springfield**—City, water pumping station, softening plant in Eagle City area, imprv. distr. sys. $4,500,000. Robert Holt, water div. supt.

Okla., Norman—City, voted $993,000 bonds WW extens. C. E. Bretz, 1916 N. Broadway, Oklahoma City, consult. engr. CD 11/5.

SEWERS, WASTE DISPOSAL

▲ **Ind., Jeffersonville**—Bd. P. Wks., City Hall, sewage treatment plant, $327,572 sewerage sys. $1,490,434, Revising plans, no bids Dec. 19. Boyd Phelps & Assocs., 1000 Washington St. Michigan City, consult. engrs. CD 11/14.

Ind., Valparaiso—Bd. P. Wks., Mayor Jno E. Wiggins, chn., City Hall, sewage treatment plant. $750,000. Boyd Phelps & Assocs., 1000 Washington St., Michigan City, consult. engrs. CD 10/12/49.

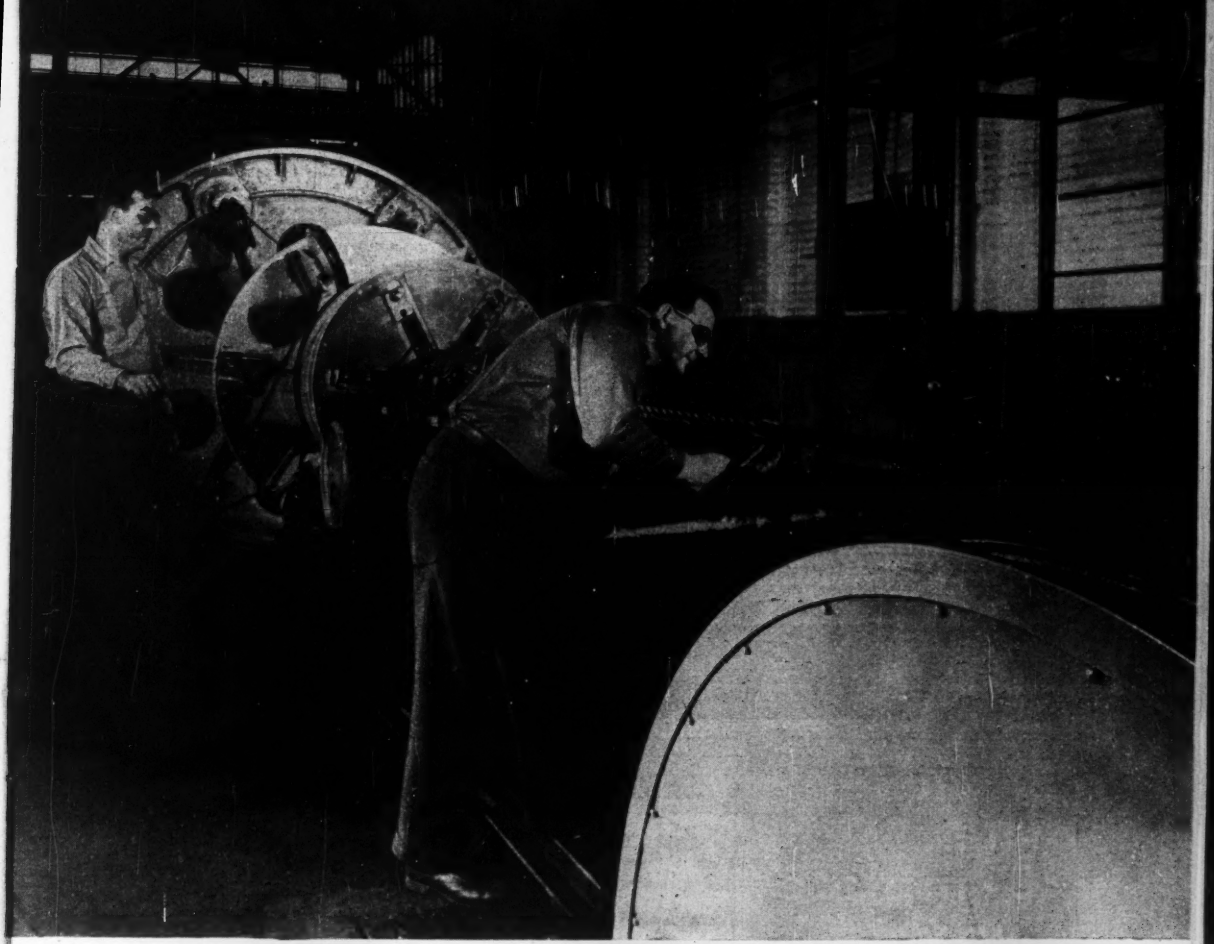
▲ **O., Canton**—City, defeated bonds Nov. 4, sewers, $1,850,000. CD 9/24.

▲ **O., Zanesville**—City, sewage disposal plant, $4,200,000. CD 2/26/51.

Tex., Houston—City, City Hall, 900 Brazos St., incinerator. $900,000. Leckwood & Andrews, 2nd Natl. Bank Bldg., consult. engrs. CD 9/4.

Tex., Texas City—Town (first unit) storm drainage incl. ditch enclosures, $500,000. Chas. R. Haile & Assoc., 2801 San Jacinto St., Houston, consult. engrs. CD 9/22.

(Continued on page 88)



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(Continued from page 86)

▲ **Va., Alexandria** -City, City Hall, sewage disposal utilities. $6,000,000. Greeley & Hansen, 220 S. State St., Chicago, Ill., consult. engrs. CD 1/11/51.

BRIDGES

▲ **Ill., Chicago**—City, City Hall, Zone 2, bascule bridge over Calumet River, at 95 St. $2,900,000.
▲ **Ill., Chicago**—Cook Co., County Bldg.,
Chicago and Cicero—grade separation 31 St. over Belt Ry. of Chicago Co., $1,040,000.
Chicago and Lincolnwood—bridge over North Branch of Chicago River, $200,000.
Evanston—grade separation reconstruction, Ridge Ave. and Chicago Northwestern R.R., $500,000.
▲ **Ill., Mt. Carmel**—Southern Railway System, J. B. Akers, ch. engr., P. O. Box 1808, Wash. 13, D. C., 5 spans, 4 steel girder spans, 2,515 ft. long structural steel truss bridge over Wabash River 1,027 ft. pile trestle approach on Illinois side from Indiana to Illinois, $1,000,000.
▲ **Ind., Evansville**—Bd. Comrs., Vanderburgh Co., Court House, bridge and overpass over Pigeon Creek and railroad tracks, $1,040,000. Pierce & Gruber, Hume-Mansur Bldg., Indianapolis, Zone 4, consult. engrs. CD 2/4/49.
▲ **Neb., Omaha**—Union Pacific R.R. Co., W. C. Perkins, ch. engr., 1416 Dodge St., viaduct over company shop grounds part of new express hy. from downtown Omaha to municipal airport, $1,000,000.
▲ **OREGON-WASHINGTON**—Oregon and Washington Hy. Comrs., Salem, Ore. and Olympia, Wash.
Multnomah Co., Ore. and Clark Co., Wash.—highway bridge across Columbia River from Multnomah (Br. Portland), Multnomah Co., Ore. to Vancouver, Clark Co., Wash. $11,200,000. Commissions to ask legislatures to authorize bonds. R. H. Baldock, Highway Bldg., Salem, Ore., engr., and Wm. A. Bugge, Olympia, Wash., engr. CD 5/26/50.
▲ **WASHINGTON**—Washington State Toll Bridge Auth., Olympia,
Kitsap Co.—10,430 ft. bridge over Hood Canal from Lofall to South Point. $18,000,000.

STREETS AND ROADS

▲ **O., Canton**—City, defeated bonds Nov. 4, street repairs. $3,500,000. CD 9/24.
Wash., Union Gap—Town, Town Hall, surf. streets. $135,000. Gray & Osborne, Larson Bldg., Yakima, consult. engrs.

EARTHWORK, WATERWAYS

† **Idaho**—U. S. Eng., 4735 E. Marginal Way, Seattle, 4, Wash., power house equipment installation at Albeni Falls Dam, Pend Oreille River, $550,000.
† **Oregon**—U. S. Eng., City—County Airport, Walla Walla, Wash., transformers for units 11 to 14, $7,500,-000; levee control and equipment yard, $550,000; main control boards, Units 9 to 14, $550,000; McNary Dam, Columbia River.
▲ **Washington**—U. S. Eng., 4735 E. Marginal Way, Seattle, Zone 4, Chief Joseph Dam Columbia River, installation of power house equip $7,500,000., main turbines for six units, $7,500,000.

AIRPORTS

▲† **Ariz., Tucson**—APRON, etc.—U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif., strengthen parking apron, operational apron, apron grid duct, $4,000,000; shops, $1,500,000; base operations, control tower, $300,000; wing and group headquarters and classified material security storage, $350,000; expansion of utilities, $300,000; squadron operations bldg., $300,-000; electrical distribution, $300,000; alert hangar, $300,000; alert apron and maintenance apron, $350,-000; O.Q. Gunrange Shop, $300,000; arm electronic shop, $300,000; aircraft washracks, $300,000; ground controlled approach AN/FPN-16, airport surveillance radar facility 16, UHF radar air-ground facility 27, $400,000; warehouse, $750,000; squadron headquarters and 4 warehouses, $300,000; all foregoing Davis-Monthan Air Force Base. CD 11/7/51.
▲† **Idaho, Mountain Home**—UNDERGROUND PIPING—U. S. Eng. City-County Airport, Walla Walla, Wash., underground piping for refuel hydrants at Mountain Home Air Force Base, $1,110,000. CD 9/18/51.
† **Idaho, Mountain Homes**—MAINTENANCE DOCKS, etc. —U. S. Eng., City-County Airport, Walla Walla, Wash. aircraft maintenance docks, $1,000,000; 2 story, frame bachelor officers quarters $1,000,000; 2 story, 8,250 sq. ft. frame operations and control tower, $175,-000; all Mountain Home Air Force Base. CD 9/15/51.
▲† **La., Monroe**—AIRPORT IMPRVS.—Eighth Naval Dist., U. S. Naval Station, 600 South St., New Orleans, plans by Wyatt C. Hedrick, First National Bank Bldg., Fort Worth, Tex., Monroe Archtects & Engineers, Monroe; Affiliated Architects & Engineers, Shreveport; Butler & Brown and Bodman & Murrell, 1175 Nicholson Dr., Baton Rouge, H. H. Land and Johns & Neel, Monroe, site development and runway constr. projects, Selman Air Force Base for Air Force, $9,000,000.
▲† **Me., Bangor**—AIRPORT FACILITIES—U. S. Eng., 857 Commonwealth Ave., Boston, Mass., runway, taxiway, parking apron, utilities, $1,000,000; Seelye, Stevenson, Value & Knecht, 101 Park Ave., New York, N. Y., consult. engrs.; hydrant refueling facilities, Hayden, Harding & Buchanan, 810 Park Square Bldg., Boston, Mass., above work at Dow Air Force Base.

† **Me., Limestone**—HANGAR—U. S. Eng., 857 Commonwealth Ave., Boston, Mass., plans by Kuljians Corp., N. Broad St., Phila., Pa., hangar bldg., Limestone Air Force Base. $500,000. CD 9/19/51.

† **Mass., Bedford**—HANGAR, etc.—U. S. Eng., 857 Commonwealth Ave., Boston, plans by Edwin T. Steffian, 11 Beacon St., Boston, alert hangar, $500,000; readiness bldg.; academic bldg.; ordnance storage bldg.; parachute bldg., Hanscom Air Field.

▲ **Mo., Lambert Field (St. Louis 21 P. O.)**—HANGAR—Air National Guard, c/o Commandant, Lambert Field, Zone 21, hangar and 4 other bldgs., on 40 acre plot at eastern portion of Lambert-St. Louis Municipal Airport, St. Louis Co. $2,000,000.

▲† **Neb., Fort Crook**—HEADQUARTERS—U. S. Eng., 1709 Jackson St., Omaha, plans by L. A. Daly Co., Insurance Bldg., Omaha, headquarters bldg. for Strategic Air Command, $6,750,000.

▲† **N. M., Albuquerque**—AIR BASE—U. S. Eng., Box 1538, Lot 1, 200x596 ft. concrete, masonry panel combination commissary, refrigerated storage, warehouse, concrete slab fdn. $750,000; Lot 2, outside utilities, incl. roads, walks, underground telephone conduits, sanitary sewers, water lines, excavating, area lighting sys., $175,000. Serial No. Eng. 005-53-55; (a) 2-double cantilever, medium bomber, hangars, $200,000; (b) 600,000 gal. ground level steel water storage tank, $70,000; (c and d) masonry type pump station, 18 in. water lines. $68,500. Serial No. Eng 29-005-53-57, Kirtland Air Force Base.

▲ **O., Dayton**—AIRPORT—City, City Hall, airport repair program, develop new terminal area in southeasterly portion of present site, $1,035,600; terminal bldg., $1,276,500; redevelop modification center bldg. and hangar group, $723,000; 1,000 ft. extension of present instrument landing runway; resurf. and repair existing runways, taxiways, reconstr. light duty northeast-southwest runway for taxiway use, $1,100,750. Leigh Fisher & Assoc., South Bend, Ind., consult. engrs. CD 4/18.

▲† **Tex., Mission**—AIR BASE DEVELOPMENT—U. S. Eng., 606 Sante Fe Bldg., Galveston, outside area lighting system, $60,000; fueling and service station, $90,000; providing repair shops, storage bldg. and some miscellaneous allied bldg. units for Jet Training Base, $500,000; extension of runways, $1,250,000; barracks or military personnel housing on base area, $650,000; water system, $75,000; sanitary sewerage sys. exten. and rehabilitation $60,000; storm sewers and open drainage, $70,000; general earthwork in field and base areas, incl. grading, leveling, filling, etc., $68,500; taxiways, $100,000; street and roads, $75,000. Moore Field Air Force Base. CD 2/20.

PUBLIC BUILDINGS

▲ **Ark., Conway**—COLLEGE—Arkansas State Teachers College, Conway, classroom bldg., $750,000, student union, $300,000; physical education bldg. for women, $450,000.

▲ **Ark., Russellville**—COLLEGE—Arkansas Polytechnic College, Russellville, engineering bldg. completion, physical education, science hall, girls dormitory, home economics bldg., auditorium, student commons bldg., and athletic field, Arkansas Polytechnic College, $2,037,000. CD 5/7/47.

▲ **Calif., Alameda**—SCHOOLS—City, City Hall, $3,000,000 bond election Jan. 15, schools.

Calif., Los Gatos—HOSPITAL—Communities of Los Gatos, Campbell and Saratoga, Los Gatos, voted $750,000 bonds, hospital. CD 9/24.

▲ **Calif., San Bernardino**—SCHOOLS—San Bernardino City School Dist., $1,750,000 bond election Jan. 27, schools. CD 3/28/50.

Calif., Shafter—SCHOOLS—Richard School Dist., Shafter, voted $700,000 bonds, schools.

Conn., Rocky Hill—SCHOOL—Town, c/o School Expansion Com., Rocky Hill, plans by Keith Seller Heine, 71 Oxford St., Hartford, Junior High and Elementary School, $800,000. CD 5/8/50.

Del., Wilmington—SCHOOL—Bd. Educ., 11 and Wollaston Sts., plans by G. Morris Whiteside 2nd, du Pont Bldg., George Gray School addn. 22 and Locust Sts. $700,000. CD 8/15.

▲ **Ga., Decatur**—WAREHOUSE—De Kalb Co. Bd. Revenues, County Office Bldg., Decatur, plans by Stevens & Wilkinson, 157 Luckie St. N.W., Atlanta, warehouse for lease to various firms $12,000,000.

▲ **Ill., Aurora**—HIGH SCHOOL—School District 121, 56 Jackson Ave., plans by Perkins & Will, 309 Jackson Blvd., Chicago, Zone 6, high school $4,000,000.

▲ **Ill., Cicero**—SCHOOL—School District 99, Cicero, plans by A. J. Zelenka, 2331 S. Lombard St., school, 50 Ave. and 15 St. $1,000,000. CD 7/31/50.

Ind., Indianapolis—HEADQUARTERS—Bd. Park Comrs., J. Russel Townsend, dir., headquarters for city park department, 2902 Harding St. $700,000.

▲ **Ind., Noblesville**—SCHOOL—Bd. School Trustees, Noblesville, brick, structural steel high school $1,000,000.

▲ **Mass., Billerica**—SCHOOL—Town, Supt. Schools, plans by Charles H. Cole, 4 Franklin Rd., Lexington, 1 and 2 story, brick, concrete, steel high school, $1,750,000. Cleverdon, Varney & Pike, 120 Tremont St., Boston, struct.-elec.-htg. engrs. Charles L. Thompson, 385 Atlantic Ave., Boston, plumbing engr. CD 11/13.

▲ **Mass., Cambridge** — HOUSING — Cambridge Housing Auth., 51 Inman St., plans by Holmes & Edwards, Inc., 126 State St., Boston, three 3 story masonry buildings incl. 72 units, Allston, Putnam and Pleasant Sts. $1,000,000. CD 11/28.

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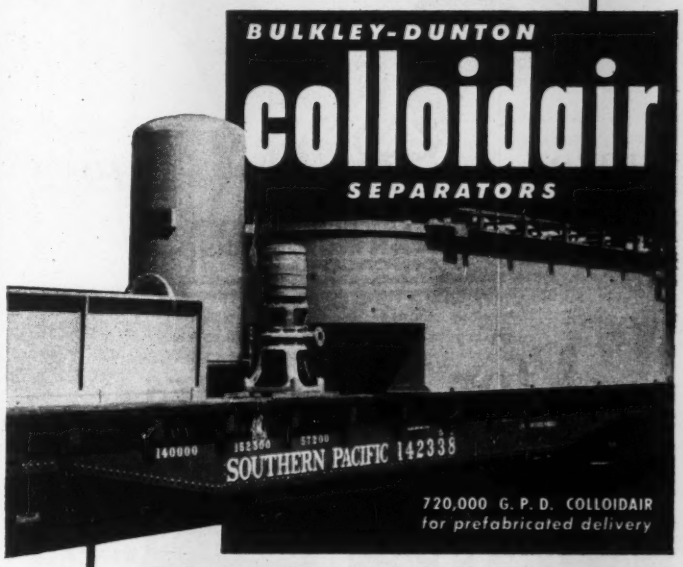

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▲ **Mass., North Reading**—SCHOOL—Town, Junior High School Bldg., Comn., c/o Supt. Schools, plans by Edouard N. Dube, 120 Tremont St., Boston, Junior High School, Peabody St. adjacent to Batchelder School, $1,000,000.

Mich., Berkley—SCHOOLS—City, M. F. Anderson, supt., voted $1,500,000 bonds, Burton, Pattengill, Oxford and Tyler School addns., $700,000; 2 story, bsmnt., brick, steel high school addn., $600,000. Earl G. Meyer, 806 Farwell Bldg., Detroit, archt. CD 10/28.

Mich., Clawson—SCHOOL—City, Bd. Educ., L. E. Baker, secy., 2 story, bsmnt., brick, steel high school, $800,000.

▲ **Mich., Detroit**—GARAGE—City, City Council, Guardian Bldg., 3 level concrete underground garage, incl. entrances, exits, ramps under Grand Circus Park, $6,000,000, Morrison-Knudsen Co., Inc., 319 Broadway, Boise, Idaho, consult. engr. CD 1/26/51.

▲ **Mich., Detroit**—WAREHOUSE—State, A. N. Langius, dir. State Bldg. Dpt., Lansing, brick, steel liquor warehouse, 12 acre site sought, $2,000,000.

Mich., Jackson—HOSPITAL—City, C. H. Elliott, mgr., plans by Karl Kressbach, Jackson, brick, steel Foote Hospital addn. $900,000. CD 5/2/51.

Minn., Faribault—SCHOOLS—Bd. Educ., R. W. Klemer, clk., voted $825,000 bonds Nov. 20, grade school, 2 grade school addns. Magney, Tusler & Setter, 202 Foshay Tower, Minneapolis, archts. CD 10/28.

Minn., Grand Rapids—HOSPITAL—Itasca County Memorial Hospital Bd., O. Bildemeister, voted $750,000 bonds Nov. 4, hospital addn., imprvs., expansion of facilities. CD 10/15.

▲ **Miss., Corinth**—SCHOOL—Corinth Separate Municipal School Dist., voted $1,000,000 bonds, high school.

▲ **O., Canton**—SCHOOLS—Bd. Educ., 618 High Ave. N.W. plans by Firestone & Motter, 1412 Cleveland Ave., N.W., rebuild Roosevelt Grade School, $500,000; plans by Lawrence & Dykes, 125 Valleyview St. N.W., rebuild Market Grade School, $750,000. CD 2/24/50.

▲ **O., Canton**—CITY HALL—City, defeated bonds Nov. 4, city hall. $1,400,000. CD 9/24.

O., Canton—GARAGE—City, City Hall, defeated bonds Nov. 4, garage. $900,000. CD 9/24.

▲ **O., Cincinnati**—RESIDENCES—Cincinnati Metropolitan Housing Auth., 595 Armory St., will not construct 340 two story bsmnt., frame residences, Kirby Rd. north of Otte Ave. $3,264,000. Project cancelled. CD 4/10.

▲ **O., Cleveland**—FACTORY—Aluminum Co. of America, 2100 Harvard Ave., factory, 11-acres with 10-story bay to house 2 hydraulic forging presses (50,000-ton and 35,000 ton) for Dpt. Air Force, $10,000,000.

Okla., Lawton—AUDITORIUM—City, plans by Paul Harris, Chickasha, 1,500 capacity city auditorium. $750,000.

▲ **Okla., Madill**—LODGE and RECREATION AREA—State Planning & Resources Bd., Morton Harrison, chn., Capitol, Oklahoma City, plans by Dow Gumerson, Enid, lodge and recreation area at Texhoma State Park, near here. $2,000,000. CD 2/5/52.

▲ **Tex., Houston**—SCHOOLS—Houston Independent School Dist., 1600 Washington St., Houston, voted bonds, New Eastside Elementary School, $650,000; New Jeff Davis School, $750,000; Hillard Negro School, $475,000; Wyatt C. Hedrick, 5201 Fannin St., Houston, consult. engrs. and archts. on above projects; Senior-High School in Bellaire Area, $1,000,000; Junior-High School, Bellfort and Chaffin Sts. in East End, $650,000; Junior-High School (Negro) in Yates School expansion area, $1,100,000; Junior-High School in Bellaire Area, $1,200,000; Junior-Senior High School (Negroes) in Northern section of city, $750,000; Senior-High School Burbank Area, $850,000; Junior-High School Kelly and Hirsch Roads, $770,000; Junior-High School (Denver Harbor Area), $950,000; Rosslyn & La Monte Roads Elementary School, $475,000; elementary school, Rice and Oak Sts., $575,000; elementary school, Terry, Finch and McKee Sts., $525,000; elementary school, Richmond Rd. and Ave. B, $575,000; Stella Link Road Elementary School, $875,000; elementary school, $600,000; Junior-High School 20-acre site Fairbanks and Hirsch Rd., $1,500,000, Stayton Nunn, 3272 Westheimer St., Houston, coordinate archt. on above 7 projects; No. 1 Junior-High School, $1,450,000; No. 2, Junior-High School, $1,250,000; No. 1 gymnasium, $300,000; No. 2 gymnasium, $325,000; No. 3 gymnasium, $315,000; No. 1 heating plant, $85,000; No. 2, heating plant, $85,000; Senior-High School, $975,000; elementary school, $550,000; Junior School, $750,000. CD 11/14.

▲ **Tex., Odessa**—SCHOOLS—Ector County and Odessa Independent School Dist., Odessa, plans by Wilson & Patterson, Majestic Bldg., Ft. Worth, Junior High School, $846,000; Junior-High Elementary School for Negroes, $400,000; group school addns., $300,000; No. 1, elementary school, $325,000; No. 2, elementary school, $375,000; No. 3, elementary school, $350,000. CD 11/21.

▲ **Wash., Spokane**—AUDITORIUM—City, City Hall, plans by Whitehouse and Price & H. C. Bertlesen, Hutton Bldg., municipal auditorium. $1,500,000. CD 11/11.

COMMERCIAL BUILDINGS

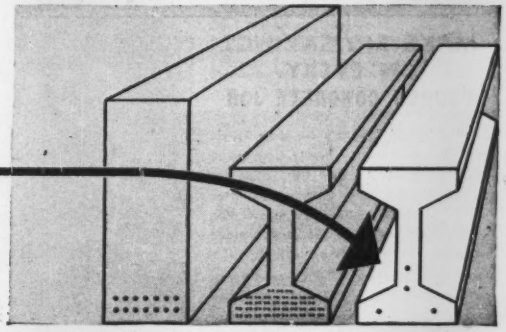
▲ **Ariz., Phoenix**—STORE—Korrick's Department Store, First St. and Washington Ave., 2 story department store addn. and escalators, $1,000,000.

▲ **Calif., Concord**—HOMES, etc.—S. C. Lawrence, 3856 Willow Pass Rd., subdivision of 1,200 homes and shopping center, $1,200,000.

▲ **Calif., Walnut Creek**—STORE—MacDonald Products Co., 1 Montgomery St., San Francisco, plans by Welton

(Continued on page 92)

STRESSTEEL for prestressing



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STRESSTEEL is the only steel of large diameter (½" to 1⅛") capable of the sustained high stresses necessary to prestress concrete.

Prestressing with STRESSTEEL, as compared with wire prestressing systems, *results in labor savings often great enough to pay for the prestressing material itself.* STRESSTEEL tensioning units may be placed, stressed and anchored with only 25 to 45 man hours per ton, as against 130 to 150 man hours per ton of high carbon wire.

STRESSTEEL is available to the American construction industry on a price list basis, free from any patent restrictions or license requirements.

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Steel:	14—1" diam. bars	78—0.196" diam. wires	4—1" diam. STRESSTEEL bars
Concrete:	910 lbs./foot	258 lbs./foot	258 lbs./foot

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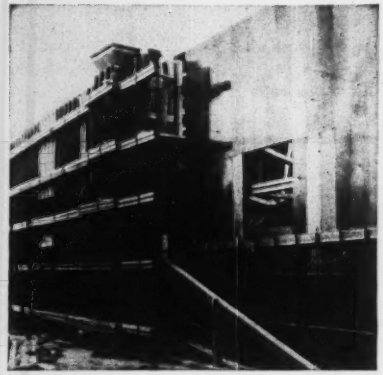

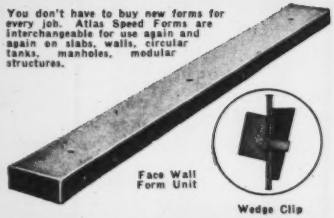

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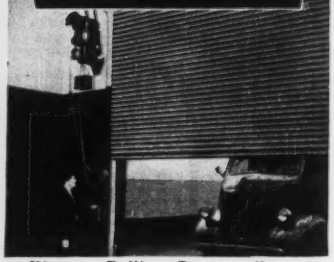

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Saving Ways in Doorways
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(Continued from page 90)

Beckett & Assocs., 3455 19 Ave., San Francisco, store, $1,000,000.

▲ D. C., Wash—SHRINE—Trustees Shrine of the Immaculate Conception, c/o Rev. Richard J. Cushing—DD LLD—1 Lake St., Brighton, Mass., plans by Maginnis & Walsh, 126 Newbury St., Boston, Mass., stone, masonry shrine, Catholic University of America Grounds. $12,000,000.

▲ Ill., Chicago—OFFICE—Continental Assurance Co. 310 S. Michigan Ave., Zone 4, office building group 3 units, 1 square block St. Clair St., Fairbanks Court, Erie St. and Huron St., $30,000,000.

▲ Ind., Indianapolis—Y.M.C.A.—Young Mens Christian Assn., 310 N. Illinois St., modernizing Central Y.M.C.A. building, new building for Senate Ave. Y.M.C.A. branch, 4 small buildings for community branches on north, south, east and west side of city, $1,500,000.

▲ Mo., University City (St. Louis 5 P.O.)—SUPERMARKET—Abel Development Co., Richard Taylor, pres., 10419 Driver Ave., Overland, Zone 14, plans by Syl G. Schmidt & Assoc., archts.-engrs., Railway Exchange Bldg., 611 Olive St., St. Louis, Zone 1, supermarket, incl. drug store. 24 shops occupying about 134,000 sq. ft. ground with some 2 story bldgs., adding about 17,000 sq. ft. addnl. office space, parking area, Hanley and Olive Street Rds. $3,000,000.

▲ N. Y., Jackson Heights—APARTMENTS—Riverbank Realty Corp., c/o Philip Birnbaum, archt., 12 E. 48 St., New York, Zone 17, 9 story apartment, 35 Ave. between 85 and 86 Sts. $2,100,000; 9 story apartment, 85 St. north of 37 Ave., $700,000.

▲ O., Cincinnati—DWELLINGS—Runck & McClure, 5971 Belmont St., plans by National Homes Corp., Lafayette, Ind., 150 one-family pre-fabricated dwellings, Kirby Rd., north of Otte Ave. $1,500,000. Reno Runck, c/o owner, engr.

▲ O., Toledo—SHOPPING CENTER—Glass Mile, Inc., c/o Ostendorf-Morris, William G. Higgins, Public Square Bldg., Cleveland, plans by Garfield, Harris, Robinson & Schafer, 1740 E. 12 St., Cleveland, 65-store shopping center on 45-acre site, Laskey and Jackman Rds., Washington Twp., 4,000-car parking area, 38-ft. wide access road around site perimeter, professional bldg. for medical offices. $5,000,000. Porter W. McDonnell, Commerce Bldg., consult. engr.

▲ Pa., Pittsburgh—DORMITORY—Duquesne University, 801 Bluff St., plans by Wm. York Cocken, 808 Century Bldg., mens dormitory, $1,325,000.

▲ Tex., Fort Worth—DWELLINGS—Curtly H. Nirike, c/o White Settlement, Forth Worth, dwellings, No. 1, 75 frame type, $490,000; No. 2, 50 frame masonry trim type, $375,000; No. 3, 100 mostly frame, concrete and post fdn. $650,000; No. 4, frame, with brick and stone trim, concrete slab fdn. $575,000; No. 5, 85 frame, stucco, concrete slab fdn. $650,000; No. 6, 125 various types, frame $775,000 all foregoing in Whitesettlement area.

Va., Franconia—MOTEL—Skylark Development Co., Shoreham Bldg., Wash., D. C., plans by Richard Craque, Danville, 128 unit 1 story masonry motel, restaurant, and swimming pool. $700,000. McDaniel & Ring, c/o owner, engr.

▲ Wash., Richland—HOUSING—Spokane Housing Inc., N. 2918 Nevada St., Spokane, construct, manage and finance, 400 houses and 25 four-unit apartment houses, Hanford Works, $4,500,000. J. W. Campbell, Spokane, archt.

▲ Ont., Toronto—APARTMENT BLOCK—Longo Construction Co., 415 Lake Shore Rd., Mimico, plans by Stanford & Wilson, 86 Charles St. E., Toronto 10 to 15 story, 175x360 ft. apartment block Lake Shore Rd., Mimico, western suburb, $1,000,000.

▲ Que., Ville St. Michel—HOUSES—James D. Raymond, 1410 Guy St., Montreal, apartment houses, 43 buildings, 1 service building, $6,000,000.

INDUSTRIAL BUILDINGS

▲ Calif., El Segundo—ENGINEERING—Douglas Aircraft Co., 827 Lapham St., plans by Kistner, Wright & Wright, 816 W. 5 St., Los Angeles, 2 story, reinforced brick, concrete engineering bldg. $2,200,000.

▲ Conn., Bridgeport—PLANT—General Electric Co., Boston Ave. and Bond St., 99,000 sq. ft. plant addn., Bond St. $3,000,000.

▲ Ill., Cicero—FREIGHT HOUSE, etc.—Chicago, Burlington & Quincy R.R., H. R. Clarke, ch. engr., 547 W. Jackson Blvd., Chicago, Zone 6, 60x1400 ft. freight house and 50x1400 ft. freight transfer platform at Morton Park Station. $4,000,000.

▲ Kan., Potwin—CATALYTIC CRACKING UNIT—Vickers Petroleum Co., W. K. H. Bldg., Wichita, expansion program incl. catalytic cracking unit, $3,500,000.

▲ O., Cleveland—BLAST FURNACE—American Steel & Wire Div. of U. S. Steel, Rockefeller Bldg., 1,350-ton capacity blast furnace for central furnaces and docks plant, Broadway and Independence Rd. $10,000,000.

▲ Pa., Lancaster—PLANT—Aluminum Co. of America, 2156 Gulf Bldg., Pittsburgh, Zone 19, fabricating plant. $3,000,000. Site not selected.

▲ Tex., Baytown—CATALYTIC PLANT—Humble Oil & Refining Co., Baytown, catalytic polymerization unit. $4,800,000.

Tex., Center—PLANT—Frank W. Harney & Assoc., c/o chamber of Commerce, Center, plywood mfg. plant. $750,000. CD 11/6.

▲ Tex., Houston—PLANT EXTENSION—Gray Tool Co., 6102 Harrisburg St., plant expansion 10-acre tract on Ardmore, beyond Old Spanish Trail. $1,000,000.

Tex., Lubbock—PLANT—Pampco Corp., Lubbock, shell cases mfg. plant. $800,000.

▲ **Newfoundland, Corner Brook**—KILN—Canadian Machinery & Industry Constr. Ltd., Topsail St., St. John's, 213 ft. long rotary kiln, 10 ft. dia., and new crusher equipment, at former North Star Cement Co. plant, $1,000,000.

▲ **Newfoundland, Trinity Bay**—POWER PLANT—Union Electric Light & Power Co., Port Union, power plant, with railway sidings, power house, 2 dams, power canal and 2,000 ft. wooden penstock near junction of Trinity and Lockston Rivers. $1,700,000.

UNCLASSIFIED

▲ **Calif., Los Angeles**—MAUSOLEUM—Hollywood Memorial Park Cemetery, 6000 Santa Monica Blvd., plans by Welton Beckett & Assocs., 5657 Wilshire Blvd., mausoleum construction program to extend over 10 year period. $35,000,000.

▲ **Calif., Riverside**—PARKS—City, 3606 7 St., defeated $1,000,000 bonds, parks. M. H. Irvine, c/o owner, engr. CD 10/13.

Fla., Tampa—TELEVISION STATION—Tampa Television Co., P. O. Box 1077, Tampa, television station, $833,000. Kear & Kennedy, 1302 18 St. N. W., Wash., D. C., consult. engrs.

Ind., Fort Wayne—TELEVISION STATION—Anthony Wayne Broadcasting Co., 4520 Old Mill Rd., television station, $622,000. Vandivere, Cohen & Wearn, 1420 New York Ave. N.W., Wash., D. C., consult. engrs.

La., New Orleans—TELEVISION STATION—Times-Picayune Pub. Co., (WTPS), 601 North St., television station. $584,000. Millard M. Garrison, 1519 Connecticut Ave. N.W., Wash., D. C., consult. engr.

▲ **Mich., Detroit**—TELEVISION STATION—Storer Broadcasting Co., George Storer, pres., c/o WJBK, 500 Temple St., 10 story, brick, steel, concrete television station, TV and radio center with connecting tunnels to Fisher, General Motors and New Center Bldgs., on 30,625 sq. ft. area, Second and Bethune Sts. $3,500,000. Skidmore, Owings & Merrill, 100 W. Monroe St., Chicago 3, Ill., archts. for preliminary designs.

Mich., Detroit—TELEVISION STATION—Woodward Broadcasting Co., (WCBO), 3315-19 Barlum Tower, Zone 26, television station. $658,000. Vandivere, Cohen & Wearn, 1420 New York Ave. N.W., Wash., D. C., consult. engrs.

N. C., Charlotte—TELEVISION STATION — Piedmont Electronics & Fixture Corp., P. O. Box 2727, television station. $690,000. Kear & Kennedy, 1320 18th St. N. W., Wash. D. C., consult. engrs.

▲ **O., Canton**—PARK, etc.—City, City Hall, defeated bonds Nov. 4, addnl. park and playgrounds. $1,000,000. CD 9/24.

O., Toledo—TELEVISION STATION—Community Broadcasting Co. (WTOL), 709 Madison Ave., Zone 2, television station, $805,000. A. D. Ring & Co., Munsey Bldg., Wash., D. C., consult. engr.

Okla., Oklahoma City—TRACK—Rock Island Lines, W. B. Throckmorton, ch. engr., LaSalle St. Station, Chicago 4, Ill., industrial track from Reno to Willow Springs Industrial Dist. $600,000.

Ore, Portland—TELEVISION STATION—Cascade Television Co., c/o J. R. Latourette, Corbett Bldg., television station, $692,000. Kear & Kennedy, 1320 18th St. N. W., Wash., D. C., consult. engrs.

▲ **Pa., Conway**—RAILROAD YARD—Pennsylvania R.R., J. L. Gressitt, ch. engr., Broad St. Station Bldg., 1617 Pennsylvania Blvd., Phila., Zone 4, triple capacity of Conway railroad classification yard, install train icing plant, facilities for feeding and resting livestock in transit, move railroad's reclamation and scrap plant from Conway to Hollidaysburg, Pa., three-year program. $34,000,000.

S. C., Florence—TELEVISION STATION — Jefferson Standard Broadcasting Co., Wilder Bldg., Charlotte, N. C. television station, $558,000. A. D. Ring & Co., Munsey Bldg., Wash. D. C., consult engr. CD 10/14.

Texas — RURAL DISTRIBUTION LINES — San Bernard Electric Co-operative, Bellville, 95 mi. electric distr. lines, 39 mi. transmission line and sys. imprvs., Austin Co. $690,000.

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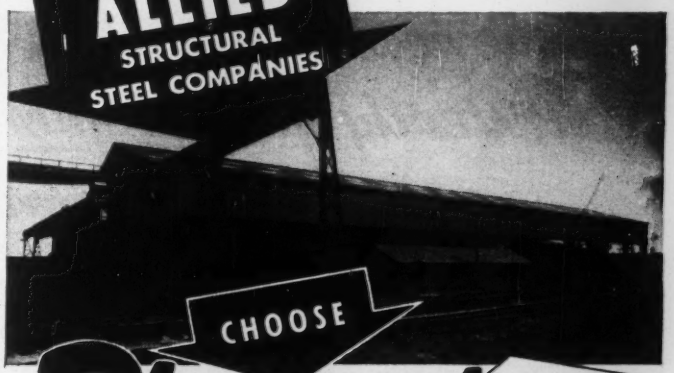

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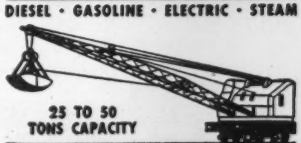

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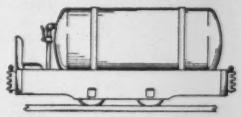

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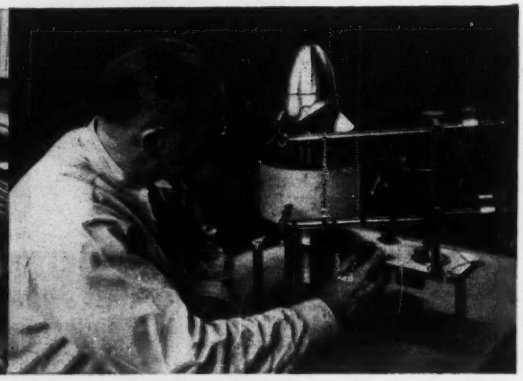

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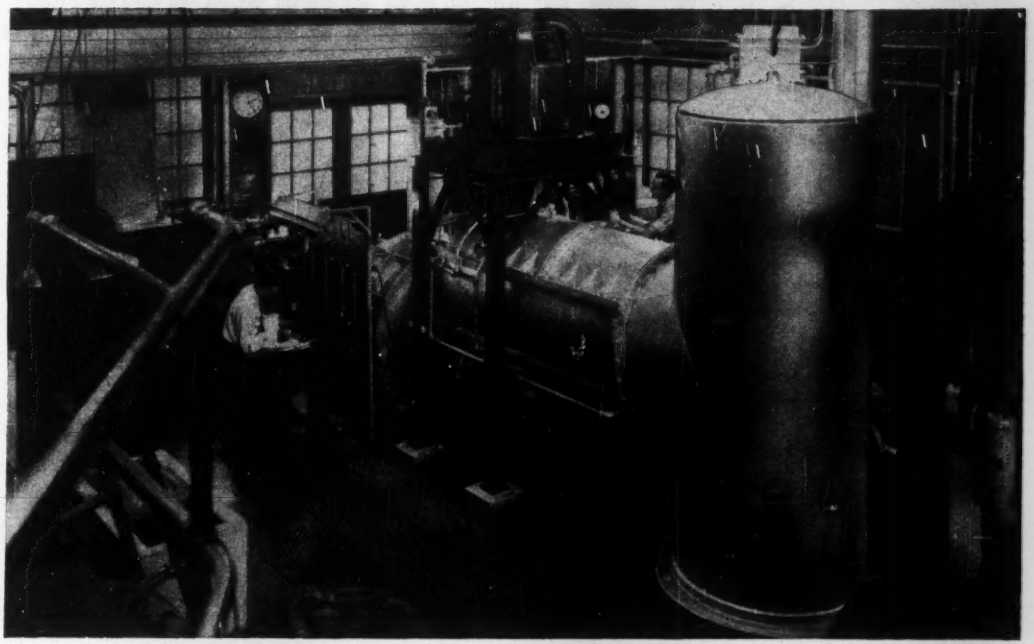

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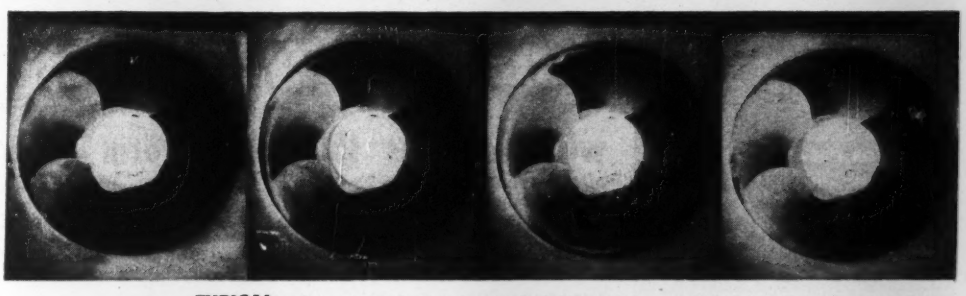

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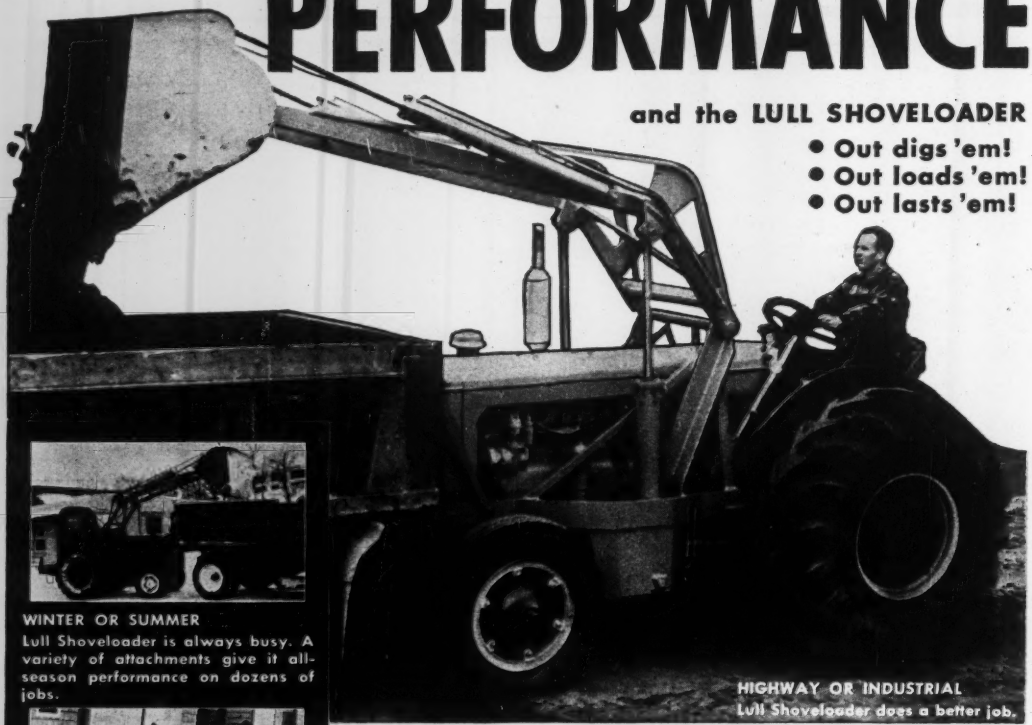

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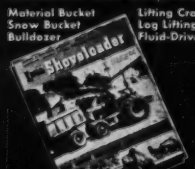

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OUT LOADS 'EM!—A Lull Shoveloader has "long reach" arms that get bucket up forward in truck bodies easy. No more backing, turning, and blocking of traffic. Also operator has full control of dumping speed. Less wear and tear on bodies. And operator is in a convenient safe location too, with full vision of bucket.

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LULL Manufacturing Company
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Bids—Low Bids—Contracts—Second Section

NEW ENGLAND

BIDS ASKED—BUILDINGS

▲ **Conn., Stamford**—HOUSING—B.A. 12/30—Stamford Housing Auth., 100 Myand Lane, 274 unit housing, Project Conn 7-2, $2,275,000. CD 1/30.

Mass., Lunenburg—SCHOOL—B.A. 1/7—Town, Bldg. Comn., A. F. Colvin, chn., c/o Town Clk's Office, Town Hall, elementary school. $300,000. Plans deposit $50, refundable. S. W. Haynes & Assoc., 336 Main St., Fitchburg, archts. CD 10/28.

BUILDINGS

LOW BIDS AND CONTRACTS

Frankini Constr. Co., Inc., 26 Mystic Ave., Medford, Mass. LB $723,381, est. $600,000. 60 HOUSING units, Proj. 200-1A, East Weymouth, WEYMOUTH, MASS. Weymouth Housing Auth., 77 Memorial Dr., Weymouth, Mass. Bids Dec. 5. CD 11/18.

▲ **High Ridge Acres,** c/o David Katz & Son, 377 Main St., Norwalk, Conn. Owner Builds. $1,000,000. 38 HOUSES on tract at Chestnut Hill and Dudley Rd., WILTON, CONN.

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
December 30, Maryland
STREETS AND ROADS
December 30, Maryland, New Jersey, New York, Pennsylvania

▲† **N. Y., Rome**—BUILDING—B.A. 2/12—U. S. Eng., 80 Lafayette St., New York, Zone 13, bldg. constr., Griffiss Air Force Base. $500,000-$1,000,000. Alexander D. Crosset, 27 William St., New York, archt. CD 9/14/51.

N. Y., Niagara Falls—PAVING—B.A. About 2/19—U. S. Eng., 80 Lafayette St., New York, Zone 13, apron paving, at Niagara Falls Air Force Base. $100,000-$500,000. Crenshaw, Beardsley & King, 2112 Erie Blvd., East Syracuse, archts.

† **N. Y., Hancock Field**—PAVING—B.A. 2/19—U. S. Eng., 80 Lafayette St., New York, Zone 13, apron paving. $100,000-$500,000. Mayer & Whittlesey, 31 Union Square, New York, Zone 3, archts.

† **N. Y., Newburgh**—MISC. BLDGS.—B.A. 2/22—U. S. Eng., 80 Lafayette St., New York, Zone 13, misc. bldgs., Stewart Air Force Base. $100,000-$500,000. Frederic R. Harris, Inc., 27 William St., New York, archt. CD 9/10.

▲† **N. Y., Niagara Falls**—AFRTC FACILITIES—B.A. About 3/22—U. S. Eng., 80 Lafayette St., New York, Zone 13, AFRTC facilities at Niagara Falls Air Force Base. $1,000,000-$5,000,000. Crenshaw, Beardsley & King, 2112 Erie Blvd., East Syracuse, archts. CD 10/16.

▲† **N. Y., Rome**—HEATING PLANT—B.A. About 3/26—U. S. Eng., 80 Lafayette St., New York, Zone 13, central heating plant, Griffiss Air Force Base. $500,000-$1,000,000. Krey & Hunt, 250 E. 43 St., New York, Zone 13, engrs. CD 9/14/51.

BIDS ASKED—BUILDINGS

Pa., Newportville—SCHOOL—B.A. 12/22—Bristol Twp. School Dist., Edgely, elementary school, $300,000. Howell Lewis Shay, Packard Bldg., Phila., archt. William H. Gravell, 2031 Chestnut St. Bldg., Phila., engr. CD 11/13.

N. Y., Brooklyn—HOUSES—B.A. 12/30—New York City Housing Auth., 63 Park Row, New York, Zone 7, foundations and general constr.; heating and ventilating; electrical work; plumbing; furnishing, install elevators for Van Dyke Houses, Sect. II, Proj. No. NY 5-13, incl. Bldgs. 14 to 22 (inclusive) in area bounded generally by Blake Ave., Powell St., Dumont Ave., and Christopher St., and by Dumont Ave., Powell St., Livonia Ave. and Stone Ave., Plans deposit $75 general constr., $25 elevators. Extended date. CD 11/26.

▲ **N. J., Camden**—HOUSING—B.A. 1/6—Camden Housing Auth., City Hall, housing, 7 to 9 Sts., etc. $3,500,000. William T. Harker, engr., 307 Market St., and Radey & MacNelly, archts., 101 N. 7 St., Camden, N. J. CD 5/22.

N. Y., Shrub Oak—HIGH SCHOOL—B.A. 1/6—Bd. Educ., Central School Dist. No. 1, Towns of Yorktown, Cortlandt and Somers, in Shrub Oak Central School, Rte. 6, Shrub Oak, general constr., heating and ventilating, plumbing and sanitary, electrical work for new Junior-Senior High School. Plans deposit $50 general constr. $25 each mech. CD 10/30, under LB.

▲ **Pa., Bristol**—HIGH SCHOOL—B.A. 1/6—Bristol Twp. School Dist., Bristol, Del Haas High School. $1,000,000. Albert E. Micklewright, 72 Ewing St., Trenton, N. J., archt.

▲ **N. Y., New Rochelle**—SCHOOL—B.A. 1/13—Bd. Educ., City Hall, 515 Main St., Trinity Elementary School. $1,500,000. CD 12/14/51.

▲ **N. Y., Newburgh**—HOUSING—B.A. 1/22—U. S. Eng., 80 Lafayette St., New York, Zone 13, construct, manage, finance, 284 housing units, Stewart Air Force Base. $1,000,000-$3,000,000. Plans deposit $60. Erwin Gerber, 1180 Raymond Blvd., Newark, N. J., archt. CD 2/13.

▲† **N. J., Dover**—FACILITIES—B.A. 3/3—U. S. Eng., 80 Lafayette St., New York 13, N. Y., miscellaneous facilities at Picatinny Arsenal, $500,000-$1,000,000.

▲† **N. Y., New York**—ARMORY—B.A. 3/17—U. S. Eng., 80 Lafayette St., Zone 13, 1,000 man ORC armory, $500,000-$1,000,000. Charles B. Ferris Assoc., 554 W. 48 St., Zone 19, archts.

▲† **N. J., Belle Mead**—WAREHOUSES—B.A. 4/2—U. S. Eng., 80 Lafayette St., New York 13, N. Y., 10 warehouses. $500,000-$1,000,000. Hart & Jerman & Assocs., 247 Park Ave., New York, N. Y., archts. CD 10/15.

SOON LETS CONTRACT—BUILDINGS

▲ **Del., Wilmington**—HOSPITAL, etc.—The Memorial Hospital, Van Buren St., soon lets contract hospital addn., alterations, $3,500,000, York & Sawyer, 101 Park Ave., New York, N. Y., archts. CD 11/28.

▲ **N. J., Princeton**—SHOPPING CENTER—Clearview Assoc., 145 Harrison St., soon lets contract shopping center, $3,600,000. Severud Elstad Krueger, 415 Lexington Ave., New York, N. Y., engrs. Ketcham, Gina & Sharp, 227 E. 44 St., New York, N. Y., archts. CD 11/13.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

NEW YORK—Jones Beach State Parkway Auth., Belmont Lake State Park, Babylon,

Good Roads Eng. & Contr. Co., Inc., Burns Ave., Wantagh, N. Y. LB $773,500, Contr. 5, grading, paving, misc. work for Captree State Parkway from Montauk Hy. to Ocean Parkway, East of Babylon, Suffolk Co. Bids Dec. 5. CD 11/10.

▲ **NEW YORK**—Henry A. Cohen, dir. Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany,

cancelled bids to have been opened Dec. 30, c. conc. pavt., b. conc. Ty. 1A, Opt. misc. work 2.53 mi. Maywood-Babylon, SH 1841, Maywood-Babylon, Pt. 2, Babylon Village S.H. 5299, Proj. U 985 (7); U-874 (4), Cont. FARC 52-122, FASH 52-19. Suffolk Co. $1,059,000. CD 12/8.

▲† **Malan Plumbing Co., Inc.,** 25-09 42 Rd., Long Island City, N. Y. CA $1,413,000, ground electronics storage and overall facilities, Griffiss Air Force Base, ENG 30-075-53-127, ROME, N. Y. U. S. Eng., 80 Lafayette St., New York 13, N. Y. Bids Nov. 18, awarded Nov. 28. CD 11/25, under LB.

▲† **Yonkers Contg. Co., Inc.,** 969 Midland Ave., Yonkers, N. Y. LB, $3,533,359, clearing, rough grading, drainage, McGuire Air Force Base, ENG 36-109-53-141, WRIGHTSTOWN, N. J. U. S. Eng., 121 N. Broad St., Phila., 1, Pa. Bids Nov. 25. CD 10/13.

▲ **Conduit & Foundation Corp.,** 770 S. Schuylkill Ave., Phila., Pa., LB $1,494,749, Queen Lane Raw Water Pumping Station;

Laub Constr. Co., 1518 Walnut St., Phila., Pa., LB $542,981, chemical bldg. at Queen Lane Filter Plant, PHILA., PA. Dpt. Procurement, City Hall Annex, Phila., Pa. Bids Nov. 17. CD 10/27.

Donaldson Paving Co., 20 Potomac Ave. S.W., Wash., D. C. LB, $133,385, repairing c.conc. roadway, alley pavements and sidewalks at various locations, WASH., D. C. Govt. of Dist. of Columbia, Director of Hys. District Bldg., Wash., D. C. Bids Dec. 8.

† **Merando, Inc.,** 813 4 St., N.E.; Wash., D. C., LB, $130,249 cold storage and meat cutting plant, Bolling Air Force Base, ENG 49-080-53-34-(28), WASH., D. C. U. S. Eng., 1 and Douglas Sts., N. W., Wash., D. C. Bids Dec. 4. CD 11/10.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Caristo Constr. Corp.,** 26 Court St., Brooklyn 2, N. Y. LB $3,676,000, general constr.;

R. L. Graziano Sons, Inc., 6100 17th Ave., Brooklyn 4, N. Y. LB $336,334, plumbing;

Bank Electrical Co., 126 W. 32 St., New York 1, N. Y. LB $455,000, electrical work,

Edward B. Kearney Co., Inc., 145 E. 47 St., New York 17, N. Y. LB $625,156, heating, for Mid-Brooklyn HIGH SCHOOL, Rutland Rd., Kingston Ave. and Winthrop St., BROOKLYN, N. Y. Bd. Educ., Bureau Constr., 49 Flatbush Ave. Exten. Brooklyn 1, N. Y. Bids Dec. 9. CD 11/13.

▲ **Paul Axelrod & Jack Lazar,** c/o Matern & York, archts., 90-04 161 St., Jamaica, N. Y. Owner Builds. $1,400,000. 103 HOUSES on 23-acre tract at Bellmore Ave. and Carla Lane, EAST MEADOW, N. Y.

Arthur & Jerry Wender, c/o A. H. Salkowitz, archt., 37-60 82 St., Jackson Heights, N. Y. Owner Builds. $600,000. 60 HOUSES, 15-acre tract at Sunrise Hy. and Rte. 109, LINDENHURST, N. Y.

Conestoga Constr. Corp., 151 Montague St., Brooklyn 2, N. Y. LB $811,664. Bird S. Coler Memorial HOSPITAL and HOME SPECIALTY SERVICE WING, NEW YORK, N. Y. Dpt. P. Wks., Municipal Bldg., New York 7, N. Y. Bids Nov. 12. CD 10/9.

C. W. C. Contr. Corp., 105 Court St., Brooklyn 2, N. Y. CA $517,300, Central Manhattan REPAIR HEADQUARTERS for Dpt. Water Supply, Gas & Electricity, NEW YORK, N. Y. Dpt. P. Wks., Municipal Bldg., New York 7, N. Y. Bids Sept. 23. CD 9/15.

▲ **East Hills at Roslyn Homes,** c/o Samuel Paul, archt., 163-18 Jamaica Ave., Jamaica, N. Y. Owner Builds. $3,500,000. 110 HOUSES, 57-acre tract, Glinen Rd., south of Northern Blvd., ROSLYN, N. Y.

▲ **Willis-At-Wantagh Homes,** c/o Alwyn Cassens, archt., 145 S. Franklin Ave., Valley Stream, N. Y. Owner Builds. $1,000,000. 85 HOUSES on 20-acre tract at Talley Lane, south of Southern State Parkway, WANTAGH, N. Y.

Libar Homes, c/o Teas & Steinbrenner, archts., Homeland Bldg., Malverne, N. Y. Owner Builds. $750,000. 50 HOUSES, on tract at Dogwood and Morton Aves., WEST HEMPSTEAD, N. Y.

▲ **Edgebrook-in-Westchester Apartments,** c/o Max Simon, archt., 1841 Broadway, New York 23, N. Y. Separate Contracts. $1,250,000. 12 two story bldgs. Garden APARTMENT for 160-families, Virginia Rd. and Hillside Ave., WHITE PLAINS, N. Y.

Carnoy Wolter Constr. Co., 55 Tarrytown Rd., White Plains, N. Y. Owner Builds. $750,000, Alanwood SHOPPING CENTER, 99 Tarrytown Rd., WHITE PLAINS, N. Y. Henry H. Moger, Jr., 250 Main St., White Plains, N. Y. archt.

Overlook House, c/o Samuel Paul, archt., 163-18 Jamaica Ave., Jamaica, N. Y. Separate Contracts. $600,000. 6 story APARTMENT for 80 families, 19 Old Marmaroneck Rd., WHITE PLAINS, N. Y.

▲ **Carlton Homes, Inc.,** c/o Shulman & Gurtman, archts., 140 Market St., Paterson, N. J., Owner Builds, $1,500,000 111 HOUSES on 40-acre tract at Prospect St. and Woodvale Rd., GLEN ROCK, N. J.

Atlantic City Electric Co., Kentucky and Pacific Aves., Atlantic City, N. J., Separate Contracts. $500,000 100x200 ft. brick, steel, concrete POWER PLANT addn., 104 ft. high, PENNSGROVE, N. J. Gibbs & Hill, Inc., Pennsylvania Station, New York, N. Y. engr.

▲ **Ole Hansen & Sons,** Ohio Turnpike and Franklin Ave., Pleasantville, N. J., CA, $2,000,000, mfg. PLANT and elevated water tank, POMONA, N. J. Lenox Inc., Meade St., Trenton, N. J. H. F. Everett & Assocs., 512 Hamilton St., Allenstown, Pa., archts.

▲ **Robert E. Lamb & Son, Inc.,** 3429 W. Indiana Ave., Phila., Pa., CA. $1,000,000. 1 story, 102,000 sq. ft. masonry FACTORY, OFFICES, railroad siding and paving, PHILA., PA. Jordan Refrigerator Co., 58 St. and Grays Ave., Phila., Pa.

▲ **Welsh-Grant Constr. Corp.,** c/o S. Bronstein, St. Davids Rd., St. Davids, Pa., Separate Contracts. $3,000,000, RESIDENTIAL DEVELOPMENT, Westfield Ave.; $325,000, RESIDENTIAL DEVELOPMENT, Disston, Longshore, Glenview Sta., and Roosevelt Blvd., PHILA., PA.

▲ **McCloskey & Co.,** 1620 W. Thompson St., Phila., Pa., CA $2,500,000. DEPARTMENT STORE, Castor Ave. and Cottman St., PHILA., PA. Lit Bros., 8th and Market Sts., Phila., Pa. CD 8/8.

▲ **F. D. Rich Co., Inc.,** 101 Park Ave., New York 17, N. Y. CA $1,681,900, HOUSING, S. Webster Ave., SCRANTON, PA. Scranton Housing Auth., City Hall, Scranton, Pa. Bids Nov. 12. CD 11/19, under LB.

▲ **S. Yellin & Son,** Inc., 222 N. 11 St., Phila. Pa., CA. $2,500,000. department STORE, WILLOW GROVE, PA. Moe Henry Hankin, Perch P. Hankin, Willow Grove, Pa. Bids Nov. 12. CD 11/11.

▲ **Bleznak Bros.,** 814 N. Broad St., Woodbury, N. J., CA $3,228,493. Construct, manage and finance 379 housing units, U. S. Naval Powder Factory, INDIAN HEAD, MD. Dist. P. Wks. Office, Potomac River Naval Command, Naval Gun Factory, Wash., D. C. CD 11/14, under LB.

▲ **Rupert Constr. Co.,** 3400 Lancaster Ave., Wilmington, Del., CA, $1,279,000, Brandywine and Edgewood SANATORIA, MARSHALLTOWN, DEL. Delaware State Bd. Health, Dover, Del. Bids Nov. 18. CD 11/13.

Rupert Constr. Co., 3400 Lancaster Ave., Wilmington, Del., CA, $636,300, River Road Elementary SCHOOL, WILMINGTON, DEL. Mt. Pleasant School District, Duncan Rd. and Phila. Pike, Wilmington Del. Bids Nov. 6. CD 11/25, under LB.

SOUTH

BIDS ASKED—BUILDINGS

Fla., Bartow—HOUSING—B.A. 12/29—Bartow Housing Auth., Bartow, 84 housing units. $700,000. Bid date changed. CD 12/5.

Fla., Jacksonville—HEALTH CENTER, etc.—B.A. 12/30—Florida State Improvement Comn., Caldwell Bldg., Tallahassee, district health center and laboratory, $350,000. Plans deposit $30. CD 11/27/51.

Fla., Tampa—HEALTH and LABORATORY—B.A. 12/30—Florida State Improvement Commission, Caldwell Bldg., Tallahassee, district health and laboratory bldg. $350,000. Plans deposit $30. CD 5/18/50.

Miss., Corinth—HOUSING—B.A. 12/30—Corinth Housing Auth., Corinth, 80 housing units, Proj. Miss. 72-2. $600,000. Extended date. CD 11/21.

Tenn., Tullahoma—HOUSING—B.A. 12/30—Tullahoma Housing Auth., Tullahoma, 100 housing units. $800,000. Extended date. CD 11/10.

N. C., Sanford—SHOPPING CENTER—B.A. 1/2—John J. Yafjack, c/o Edward Loewenstein, archt., Greensboro, shopping center. $350,000.

Ala., Opelika—HOUSING—B.A. 1/6—Opelika Housing Auth., Opelika, HOUSING, Project Ala 61-1, 74 units, $600,000. Extended date. CD 12/8.

La., New Orleans—SCHOOL—B.A. 1/6—Orleans Parish School Bd., 3649 Laurel St., Oak Park Elementary School. $500,000. Wm. R. Burk, 632 Pirates Alley, archt. CD 5/5/52.

Miss., Waynesboro—HOUSING—B.A. 1/6—Waynesboro Housing Auth., 50 housing units. $375,000. CD 9/14/51.

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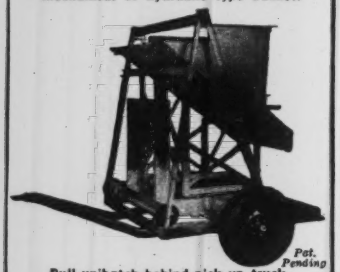

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† **Va., Portsmouth**—POWER PLANT—B.A. 1/6—P. Wks. Office, Headquarters, Fifth Naval Dist., U. S. Naval Base, Norfolk, Zone 11, modernization of power plant at U. S. Naval Hospital, NOY 70224, Spec. 30147. Plans deposit $10.

La., New Orleans—HOUSING—B.A. 1/13—Eight Naval Dist., 600 South St., construct, manage and finance 90 housing units at Naval Air Station. $700,000. CD 5/24/51.

Va., Pulaski—HIGH SCHOOL—B.A. 1/29—Pulaski County School Bd., Pulaski, 2 story bsmnt., masonry high school. $800,000. Smithey & Boynton, 112 Kirk Ave. S.W., Roanoke, archts. CD 6/2/50.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲† **Duval Eng. & Constr. Co.**, 1746 E. Adams St., Jacksonville, Fla., CA. **$2,147,312** airfield pavements Glynco, NOY 72973, BRUNSWICK, GA. Dpt. Navy, Officer in Charge of Construction, Box 365 Naval Base, S. C. Bids Dec. 3. CD 12/9, under LB.

▲† **Warren Bros. Roads Co.**, 400 S. 41 St., Birmingham, Ala. LB. **$1,383,000.** 150,000 squares concrete mattress at Greenville Casting Field, Greenville, MISSISSIPPI. U. S. Eng., P.O. Box 60, Vicksburg, Miss. Bids Dec. 3. CD 11/5.

Magnolia Electric Power Assn., McComb, Miss. Own Forces. Est. **$495,000.** 269 mi. rural distr. lines, other imprvs., Pike Co., MISSISSIPPI. Bowman & Bowman, Greenwood, Miss., engrs. CD 7/23/51.

▲† **Ivey Bros. Constr. Co.**, 3224 Peachtree Rd., Atlanta, Ga. CA. **$1,200,000.** academic bldg., Keesler Air Force Base, BILOXI, MISS. U. S. Eng., 2301 Grant St., Mobile 7, Ala. CD 11/7, under LB.

† **Fordice Constr. Co.**, Porter Bldg., Memphis, Tenn. LB. **$793,600.** 80,000 squares concrete mattress. Delta;

T. L. James & Co., Ruston, La. LB. **$654,500.** 70,000 squares concrete mattress, Vidalia, LOUISIANA. U. S. Eng., P.O. Box 60, Vicksburg, Miss. Bids Dec. 4. CD 11/5.

▲ **Tennessee**—State Hy. Dpt., Nashville,

Claiborne Constr. Co., Lafollette, Tenn. LB. **$133,801,** crushed stone surf., sect. 6.44 mi. of Secondary 2353, from 5 mi. northwest of Tazewell and extending northeasterly 6 mi. to Hopewell School, Claiborne Co.;

C. R. Pickle & Sons, Shelbyville, Tenn. LB. **$80,159,** crushed stone surf. 3.289 mi. sect. Secondary 6159 from Tennessee Central R.R. approx. 2 mi. northeast Donelson and extending toward Baird's Mill to Wilson Co. line, Davidson Co.;

John L. Brinkley, Shelbyville, LB. **$70,974**, grav. and chert surf., and constr. one bridge 7.64 mi. on Secondary 6225 from near Rte. No. 1 in McEwen to near Humphreys-Houston Co. lines, Humphreys and Houston Counties;

Knoxville Constr. Co., River Terminal Rd., Knoxville, Tenn., LB. **$67,886,** crushed stone and bit. materials surf. 8.211 mi. sect. of Secondary 2410 from near north city limits of Knoxville extending to Raccoon Valley Rd. at Heiskell, Knox Co.;

Anderson-Gregory Co., Cotton States Bldg., Nashville, Tenn., LB. **$112,727,** crushed stone surf. sect. of Secondary 2473 from point 4.86 mi. west of Oliver Springs and extending to Oliver Springs, and connecting road between Secondary 2473 and State No. 61 at Scandlyn, Roane Co.;

A. B. Burton Co., Lynchburg, Va., LB. **$768,376,** crushed stone surf., and constr. 7 bridges 7.17 mi. State 73 between Gatlinburg and Cosby from near Little Pigeon River and extending to near Cocke Co. line, Sevier Co.;

J. B. Michael & Co., 1021 Heywood St., Memphis, Tenn. and **Forcum-James Co.**, 1489 Thomas St., Memphis, Tenn. LB. **$261,491,** wid'n. and bit. materials resurf 5.121 mi. sect. State 3, from Shelby-Tipton Co. line, extending to Atoka Rd., Tipton Co.;

Miles Constr. Co., Nashville, Tenn., LB. **$63,286,** crushed stone surf., 2 bridges 2.803 mi. Secondary 6183, southeast of Franklin from Roderville to Arno, Williamson Co. Bids Dec. 5. CD 11/17.

▲† **The Weymouth Constr. Co.**, 2174 Person St., Memphis, Tenn., LB. **$1,451,520,** est. $1,443,120. casting 168,000 mattress units in a field at Richardson Landing approx. 35 mi. up the Mississippi River from Memphis, Tenn.; LB. **$1,380,000,** est. $1,974,360. casting 156 mattress units at Helena, Ark. CIVENG 40-041-53-69, TENNESSEE and ARKANSAS. U. S. U. S. Eng., P.O. Box 97, **Memphis, 1, Tenn.** Bids Dec. 2. CD 10/31.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Victor N. Judson, Inc., 1518 K St., N.W., Wash., D. C.**, LB **$647,500;**

E. L. Daniels, 3720 27th St., North Arlington, Va., LB **$653,823,** minus $107,436, Alt. 1, Taylor Elementary SCHOOL, 26 and Military Rds., ARLINGTON, VA. Bd. Educ., Arlington Co., 1426 N. Quincy St., Arlington, Va. Bids Dec. 4. CD 11/25.

Southeastern Constr. Co., Peoples Bldg., Charleston, W. Va., LB. **$835,040,** mechanical PLANT, first unit of medical center, MORGANTOWN, W. VA. West Virginia University, Morgantown, W. Va. Bids Dec. 3. CD 11/7.

C. B. Moore, Wilora Lake Rd., Charlotte, N. C. Owner Builds. **$500,000.** 50 RESIDENCES, CHARLOTTE, N. C.

Norman A. Smyth Co., 404½ S. Tryon St., Charlotte, N. C. CA. **$500,000,** CHURCH, CHARLOTTE, N. C. Holy Trinity Greek Orthodox Community, c/o contractor.

▲ **Cecil's, Inc.**, Box 1895, Spartanburg, S. C. LB **$1,249,000.** HOUSING, 210 units and admin.-maintenance bldg., ROCKY MOUNT, N. C. Rocky Mount Housing Auth., Rocky Mount, N. C. Bids Dec. 2. CD 11/11.

Strother-Barge Co., 189 Cain St. N.E., Atlanta, Ga., CA, **$425,319,** Conley Hills Elementary SCHOOL, East Point, ATLANTA, GA. Fulton Co. Bd. Educ., Court House, Atlanta, Ga. Bids Dec. 2. CD 12/5, under LB.

Clinch Co. Bd. Educ., Homerville, Ga., rejected bids Nov. 28, two new SCHOOLS and 3 school addns., HOMERVILLE, GA., LB, **$694,549.** CD 12/5, under LB.

Central of Georgia Railway, Rhodes-Haverty Bldg., Atlanta, Ga. Owner Builds. **$500,000,** rebuild nitrate of soda WAREHOUSE, SAVANNAH, GA. CD 4/16.

S. S. Jacobs Co., Hildebrandt Bldg., Jacksonville, Fla., CA, **$745,000** HEALTH bldg., JACKSONVILLE, FLA. Young Mens Christian Assn., 101 E. Church St., Jacksonville, Fla. Bids Nov. 28. CD 12/2.

▲ **Gaines Constr. Co.**, 5232 W. Flagler St., Miami, Fla., Owner Builds, **$1,200,000,** 100 RESIDENCES, MIAMI, FLA.

▲ **Arnold Constr. Co.**, P. O. Box 505, 22 St. Station, St. Petersburg, Fla., CA, **$1,287,577.** 58th Street High SCHOOL, ST. PETERSBURG, FLA. Pinellas Co. Bd. P. Instruction, 305 Haven St., St. Petersburg, Fla. Bids Nov. 26. CD 12/8, under LB.

Chester Mabry, 1529 Grand Central Ave., Tampa, Fla., CA, **$475,761.** Booker High SCHOOL, SARASOTA, FLA. Sarasota Co. Bd. P. Instruction, Sarasota, Fla. Bids Dec. 2. CD 11/12.

F. R. Hoar & Son, 2808 19 Pl. S., Birmingham, Ala., CA **$551,000,** adult EDUCATION CENTER, BIRMINGHAM, ALA. University of Alabama, Hillman Auditorium, Jefferson-Hillman Hospital, Birmingham, Ala. Bids Dec. 3. CD 12/9, under LB.

▲ **Tri-Cities Constr. Co.**, 3009 Jackson Highway, Florence, Ala., CA, $1,152,000, mfg. PLANT, FLORENCE, ALA. City, City Hall, Florence, Ala. CD 9/30.

▲ **Southeastern Constr. Co.**, P. O. Box 3111, Jackson, Miss. LB **$1,985,000.** HOSPITAL addn., MONROE, LA. St. Francis Sanitarium, Monroe, La. Bids Dec. 5. CD 11/11.

Switzer Willing Co., Trafton Ave., Lexington, Ky. LB, $807,829. general contract. 1 story, bsmnt., brick, stone Clays Mill Pike Elementary SCHOOL, LEXINGTON, KY. Fayette Co. Bd. Educ., Court House, Lexington, Ky. Bids Dec. 2. CD 11/11.

Wehr Constr. Co., 2127 S. Floyd St., Louisville 8, Ky. CA, **$692,700.** Fern Creek High SCHOOL addn., Fern Creek, LOUISVILLE, KY. Jefferson Co. Bd. Educ., W. Jefferson St., Louisville, Ky. Bids Nov. 20, awarded Dec. 1. CD 11/26, under LB.

▲ **Greenway Development Co.**, c/o George F. Mahoney, archt., 1340 Monroe St., Memphis, Tenn. Owner Builds. **$1,000,000.** 115 RESIDENCES, MEMPHIS, TENN.

Canfield, Badgett & Scarbrough Co., 1850 Union Ave., Memphis, Tenn., LB Approx. **$650,000.** GYMNASIUM, MEMPHIS, TENN. Southwestern at Memphis, 2000 N. Parkway, Memphis, Tenn. Bids Nov. 13. CD 11/6.

John C. Clark, c/o George F. Mahoney, archt., 1340 Monroe St., Memphis, Tenn. Owner Builds. **$500,000.** 50 RESIDENCES. MEMPHIS, TENN.

MIDDLE WEST

BIDS ASKED—HEAVY CONSTRUCTION

▲ **Ind., Jeffersonville**—B.A. 1/8—Bd. P. Wks., S. G. Shannon, mayor, Carl Brown, clk., City Hall, sewage treatment plant and sewerage sys. $2,000,000. Plans deposit $50, treatment plant and $50 for sewer plans. Boyd Phelps, 839 Ind. Pythian Bldg., Indianapolis, Zone 4, consult engrs. CD 12/4.

BIDS ASKED—BUILDINGS

▲ **Ill., Chicago**—UNDERGROUND GARAGE—B.A. 1/8—Chicago Park District, 425 E. 14 St., Zone 5, two levels, 400,000 sq. ft., underground garage along Michigan Ave. from Randolph and Monroe Sts. $8,500,000. Ralph H. Burke, 20 N. Wacker Dr., Zone 6, engr. CD 12/6/51.

SOON LETS CONTRACT—BUILDINGS

▲ **Ill., Chicago**—HIGH SCHOOL, etc.—St. Patricks Academy for Boys, 122 S. Des Plaines St., soon lets contract high school, chapel and faculty house, library, gymnasium $2,000,000. Edo J. Belli, 8 S. Dearborn St., Zone 3, archt. CD 8/5.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **J. A. Jones Constr. Co.**, 209 W. Fourth St., Charlotte, N. C. LB **$6,680,198.** Hoover Dam for storage reservoir, COLUMBUS, O., City, City Hall, Columbus, O. Bids Dec. 9. CD 11/28.

† **Walter T. Dunlap & Co. & Inland Constr. Co. of Nebraska**, P. O. Box 541, Lexington, Neb., LB, $672,500, est. $418,775, 500 relief wells and 100 piezometers along landslide toe of riverfront and land levees of Harrisonville and Ivy Landing, Fort Chartres and Ivy Landing Stringtown, Fort Chartres and Ivy Landing Drainage and Levee Dists., Monroe and Randolph Counties, CIVENG 23-065-53-63, ILLINOIS U. S. Eng., 420 Locust St., St. Louis 2, Mo. Bids Dec. 5.

▲ **W. E. Wood Co.**, 4479 Humboldt St., Detroit, Mich. CA **$2,125,000** Comr. 6th booster stations, underground reservoir, James Cousens Hy. and Greenfield Rd., DETROIT, MICH. City, Oscar Wagner, pres. Water Comn., 735 Randolph St., Detroit 26, Mich. Bids Nov. 19. CD 10/30.

BUILDINGS

LOW BIDS AND CONTRACTS

Leonard H. Krill Co., 2169 E. 33 St., Cleveland, O. CA. **$500,000.** 1 story, 60,000 sq. ft. brick WAREHOUSE, floor-level railroad siding, 3-truck loading slip. 5905 Grant Ave., Cuyahoga Heights, CLEVELAND, O. James Lees & Sons Co., 295 5th Ave., New York, N. Y. Dalton & Dalton, Old Arcade, Cleveland, O., archts.

Scioto Terrace Manor, Inc., Portsmouth, O., Own Forces. **$900,000.** 106 HOUSING units, near Atomic Plant, PORTSMOUTH, O.

Fred W. Entenman Co., 3323 Secor Rd., Toledo, O., CA Approx. **$400,000.** brick, stone CHURCH, TOLEDO, O. Blessed Sacrament Catholic Church, Castlewood and Bellevue Rds., Toledo, O. Bellman, Gillette & Richards, 518 Jefferson St., Toledo, O., archts. CD 2/18/46.

C. F. Vatterott & Assoc., 10253 St. Charles Rk. Rd., St. Louis, Mo. Own Forces. **$750,000.** 75 FHA-approved HOUSING units, near Atomic Plant., WAVERLY, O.

Leader Homes, Inc., 415 E. Washington St., Indianapolis, Ind., Owner Builds, **$800,000** 80 HOMES, INDIANAPOLIS, IND. CD 3/12/51.

Paul B. Walker Realty Co., Lawrence, Ind., Owner Builds **$450,000,** 50 HOMES, LAWRENCE, IND. CD 11/28.

▲ **Montague Constr. Co.**, 228 N. La Salle St., Chicago, 1, Ill. CA, **$1,000,000,** 17 story, APARTMENT with GARAGE, 1540 N. State St., CHICAGO, ILL. Donald Easter, Agent for Trust, 10 S. La Salle St., Chicago, 3, Ill. Bids Oct. 31, awarded Dec. 4. CD 10/22.

▲ **Heatherfield Homes, Inc.**, 238 Glenview Rd., Glenview, Ill. Owner Builds, **$2,000,000.** 75 RESIDENCES, sewer and water lines, paving, GLENVIEW, ILL. Thos. F. Cunningham, 7558 N. Claremont St., Chicago, Ill., archt.

Sylvan Manor Constr. Co., 300 Lawyer Bldg., Detroit, Mich. CA Est. **$500,000.** 5 bldg. SHOPPING CENTER incl. department store, super market, etc., Middlebelt and Orchard Lake Rds., BLOOMFIELD HILLS, MICH. Jack Raisin, 300 Lawyers Bldg., Detroit, Mich.

Comfort-Built Homes, Inc., 2980 W. Davison St., Detroit, Mich. CA Est. **$700,000.** 60 brick ranch HOMES, Grandville and Eight Mile Rd. section, DETROIT, MICH. Metropolitan Real Estate Co., 20536 W. Seven Mile Rd., Detroit, Mich.

▲ **Ira Hotchkiss Co.**, 15930 Wyoming St., Detroit, Mich. Owner Builds. **$1,200,000.** 125 single grey brick HOMES, Fenton-West Chicago Site, REDFORD, MICH.

Biltmore Building Co., 17615 James Couzens St., Detroit, Mich. Owner Builds. **$800,000.** 75 single brick HOMES, Five Mile Rd., Lola Valley Park, REDFORD, MICH.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION

▲ **Okla., Lawton**—B.A. 12/30—City, 24 mi. 30 in. c.i. water main. $1,000,000. W. B. Hendrick, 216 Koehler Bldg., Lawton, engr. CD 10/28.

† **N. M., Alamogordo**—RADIO FACILITIES—B.A. On Or About 1/7—U. S. Eng., P.O. Box 1538, 2108 Central Ave. S.E., Albuquerque, UHF radio air/ground facilities AN/GRC-27, Holloman Air Development Center, Serial No. Eng 29-005-53-54. Plans deposit $50. CD 8/28/51.

† **Texas**—B.A. 1/7—U. S. Eng., 100 W. Vickery St., Fort Worth, sump excavation and strengthening portion of East Levee, Dallas Floodway, Trinity River, Inv. No. CIVENG 41-443-53-23. CD 6/9/44.

† **New Mexico-Texas**—B.A. 1/8—Bureau Reclamation, Dpt. Interior, U. S. Court House, El Paso, Tex., furnishing labor and materials for Picacho Arroyo Control, North Branch Dam, Rio Grande Proj. 5 mi. northwest of Las Cruces, Spec. No. DC 3856; adv. ENR 12/18. CD 9/7/44.

Ia., Des Moines—SWIMMING POOL—B.A. 1/20—Bd. Educ., enclosed swimming pool and building as an addn. to Smouse School. $125,000. Wetherell & Harrison, 506 Shops Bldg., archts. CD 11/16/50.

▲ **Texas**—PRODUCTS PIPE LINE—Bids Asked—Sinclair Pipe Line Co., Commerce Bldg. Addn., Houston, 2nd leg of 45 mi. of an 85 mi. products pipe from near Houston to Port Arthur, $1,600,000. CD 5/2.

BIDS ASKED—BUILDINGS

Neb., Ralston—SCHOOL—B.A. 12/30—Bd. Educ., Ralston, School. $500,000. J. W. Radotinsky, 1401 Fairfax Trafficway, Kansas City, Kan., archt. CD 5/19.

▲ **Tex., Waco**—DORMITORY—B.A. 12/31—Baylor University, 1401 S. 5 St., 3 story, 95,000 sq. ft., rein.-con. fdn. and frame, stone, partial bsmnt., 320-capacity womens dormitory, $750,000-$1,000,000. Extended date. Easterwood & Easterwood, 601 Service Mutual Bldg., archts. R. S. Smith, T. & P. Bldg., and Leonard E. Kanto, N. P. Anderson Bldg., Fort Worth, engrs. CD 11/26.

Tex., Texarkana—HIGH SCHOOL—B.A. 1/6—Texarkana Independent School Dist., Texarkana, Dunbar Negro High School, Tex. 51-C-19-A. $400,000. Extended date. Wyatt C. Hedrick, 905 Fort Worth Ave., Dallas, engr.-archt. CD 12/9.

Tex., Bryan—HOUSING—B.A. 1/14—Bryan City Housing Auth., Bryan, 110 housing units for total 42 bldgs., Proj. Tex. 20-2. $775,000. Extended date. Wm. E. Nash, Bryan, archt. CD 11/25.

▲ **Tex., Victoria**—SCHOOL—B.A. 1/20—Victoria Independent School Dist., Victoria, Junior High School. $1,055,000. Plans deposit $25. Fehr & Granger, 502 E. 5th St., Austin, archts. CD 9/30.

▲ **Mo., St. Louis**—HOUSING—B.A. 1/29—At office Carr Square Village, 1521 Carr Dr., 602 dwelling units, demolition of certain bldgs., incidental work, southeast of Jefferson and Cass Aves., Sect. I Proj. Mo. 1-5, for St. Louis Housing Auth., John J. O'Toole, exec. dir., 901 Washington Ave., Zone 1. $6,000,000. Hellmuth, Yamasaki & Leinweber, 722 Chestnut St., Zone 1, archts. CD 9/3.

▲ **Tex., Dallas**—HOTEL—Bids Asked—Hotel Statler Co., Inc., c/o Arthur F. Douglas, pres., 7 Ave. and 33 St., New York, N. Y., 900-room hotel, St. Paul and Commerce Sts. $15,000,000. Holabird & Root & Burgee, 180 N. Wabash St., Chicago, Ill., archts. CD 10/6.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

† **W. J. Menefee Constr. Co.**, 419 W. Main St., Sedalia, Mo. CA $703,643, est. $775,193. roads, 4,500 ft. railroads, parking areas, Sedalia Air Force Base, Eng. 23-028-53-38, SEDALIA, MO. U. S. Eng., 601 Davidson Bldg., Kansas City 8, Mo. CD 12/9, under LB.

▲† **Walters Contg. Corp.**, 35-10 Broadway, Long Island City, N. Y. CA. $1,055,765, est. $1,461,182. refueling and fuel storage facility, hydrant sys., etc., Sedalia Air Force Base, Eng. 23-028-53, SEDALIA, MO. U. S. Eng., 601 Davidson Bldg., Kansas City 8, Mo. CD 11/26, under LB.

Asplund Constr. Co., Oak St., Enid, Okla., CA. $645,118, est. $710,000. outfall, sanitary mains, sub sanitary mains, ENID, OKLA. City, Enid, Okla. Hudgins, Thompson & Ball, 1100 W. Main St., Oklahoma City, Okla., engrs. Bids Nov. 24, awarded Dec. 1.

Empire Constr. Co., 8202 Barbaree St., Dallas, Tex., CA $318,000 const. 16 in. "N" repeater bldgs., location from one at Dallas interspersed to the last one at Wichita Falls, TEXAS. Southwestern Bell Telephone Co., 308 S. Akard St., Dallas, Tex.

▲ **Sinclair Pipe Line Co.**, Commerce Bldg. Addn., Houston, Tex. Own Forces. $1,400,000. 1st 40 mi. of proposed 85 mi. products pipe line between Houston and Port Arthur, TEXAS. CD 11/11.

▲ **NEW MEXICO**—State Hy. Comn., Capitol Bldg., Santa Fe.

Skousen-Hise Contr. Co., Springer Bldg., Albuquerque, N. M., CA. $156,365, N. M. Proj. No. S-61 (2), Newkirk-Conchas Dam, Guadalupe Co. CA $599,315, State Proj. No. FAP 151, Barton-Moriarty, Bernalillo, Santa Fe and Torrance Counties;

Henry Thygesen & Co., 424 E. McKinley Ave., Albuquerque, N. M., CA $214,218, N. M. Proj. No. S-247 (1), Hillsboro East, Sierra Co.; CA $442,547, State Proj. No. FAP 155, Wagon Mound-Watrous, Mora Co.;

Floyd Haake, Agua Fria, Santa Fe, N. M., CA $147,853, N. M. Proj. No. S-265 (1), House-Jct. N. M. 88, Roosevelt Co. Grand total $1,560,298. Bids Dec. 5. CD 11/26.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Standard Constr. Co.**, 607 Hamm Bldg., St. Paul, Minn., CA, general contract;

Mechanical Constructors, Moline, Ill., CA, plumbing and heating;

Paul's Electric Co., Fort Madison, Ia., CA, electrical work, for HOSPITAL addn., FORT MADISON, IA. Sacred Heart Hospital, Fort Madison, Ia. Total est. $1,430,450. Bids Nov. 25.

▲ **Jas. H. Stanton Constr. Co.**, 9001 Wornall Rd., Kansas City, Mo. Owner Builds. Est. $5,000,000. 380 HOMES, Western Hill subdivision, 150 acres, 89 and Wornall Sts., and 6 acres commercial development, KANSAS CITY, MO. Hare & Hare, 114 W. 10 St., Kansas City, Mo., site planning archts. Kenneth Larkin & Assoc., Wirthman Bldg., Kansas City, Mo., sewage engrs.

Chas. B. Daniels, 3112 W. 89 St., Overland Park, Kan. Owner Builds. est. $500,000. 10 RESIDENCES, 40 Somerset Acres, 87-89 and Mission Sts., south of Leawood, OLATHE, KAN.

M. W. Watson, National Bank of Topeka Bldg., Topeka, Kan. CA general contract,

Sheahan & Degan, 1014 Kansas Ave., Topeka, Kan. CA plumbing and heating contracts;

Tucker Electric Co., 619 Jackson St., Topeka, Kan. CA electric work for HOSPITAL expansion. TOPEKA, KAN. Methodist Home for Aged, c/o R. E. Reeling, chn. Bd., 1135 College St., Topeka, Kan. Total est. $750,000. Bids Nov. 24. CD 11/20.

J. M. **Odom**, Box 774, Austin, Tex., CA. $588,807, 42-bed HOSPITAL addn., AUSTIN, TEX. Seton Hospital Corp., c/o Sister Basil, pres., 600 W. 26 St., Austin, Tex. Bids Nov. 24. CD 12/2, under LB.

D. E. Martin & L. W. Williams, 2010 W. 14½ St., Houston, Tex., Owner Builds. Approx. $340,000. 38 DWELLINGS, HOUSTON, TEX. CD 11/12.

Wilson Built Homes, 5516 Yale St., Houston, Tex. Owner Builds. $375,000. 15 DWELLINGS, HOUSTON, TEX. Jim Gault, 11013 Penelope St., Houston, Tex., archt.

James H. Giles, Hermann Bldg., Houston, Tex. Owner Builds. $340,000. 16 DWELLINGS, HOUSTON, TEX. CD 11/7.

Panoma Corp., Amarillo, Tex., Purchase and Hire. Approx. $875,000, natural-gasoline PLANT expansion, near PANHANDLE, TEX. CD 12/4.

Robert V. King, 17 Rivercrest St., Houston, Tex. Owner Builds. $525,000. Unit 2, 75 DWELLINGS, in new 70-acre tract off Red Bluff Rd., PASADENA, TEX. CD 10/17.

Hill & McCordic, The Builders, 136 Arnold St., San Antonio, Tex., Owner Builds. $350,000. 35 DWELLINGS, SAN ANTONIO, TEX. CD 12/1.

Wilshire Development Co., Wm. Orts, Rittiman Rd., San Antonio, Tex., Purchase and Hire. $375,000. 50 DWELLINGS, SAN ANTONIO, TEX. CD 10/15.

▲ **Burns Constr. Co.**, Burns Vault Bldg., Denver, Colo., LB, $1,037,600, construct, manage and finance 102-family HOUSING units of 12 one-bedroom units, 78 two-bedroom units and 12-three bedroom units, Pueblo Ordnance Depot, PUEBLO, COLO. U. S. Eng., 1709 Jackson St., Omaha, Neb. Bids Dec. 1.

FAR WEST

BIDS ASKED—HEAVY CONSTRUCTION

Calif., Los Angeles—B.A. 12/30—Los Angeles Co. Flood Control Dist., 2250 Alcazar St., rein.-con. conduit in Aliso Creek from Wilbur Ave. to Los Angeles River. $750,000. CD 5/1.

BIDS ASKED—BUILDINGS

Wash., Chehalis—PHYSICAL EDUCATION, etc.—B.A. 1/6—School Dist. 302, Chehalis, 30,000 sq. ft., rein.-con. masonry and frame physical education and music bldg. addn. to high school, $380,000. Mallis & De Hart, Lyon Bldg., Seattle, Zone 4, archts.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

† **Pennsylvania Transformer Co.**, Canonsburg, Pa., LB, $408,000, four 35,000 kva. transformers for Palisades Power Plant, Palisades Proj., Spec. DS 3812, IDAHO. Bureau Reclamation, Dpt. Interior. Bldg. 53, Denver Federal Center, Denver, Colo. Bids Dec. 4. CD 11/12.

▲ **Ukropina, Polich & Kral and Steve P. Rados**, 201 Las Tunas Dr., San Gabriel, Calif., LB, $3,705,494. Garvey Reservoir to Southern Ave., portion of Middle Feeder, precast concrete pipe alternate, LOS ANGELES, CALIF. Metropolitan Water Dist. of Southern California, 306 W. 3 St., Los Angeles, Calif. Bids Dec. 5. CD 11/19.

▲† **P. J. Walker Co.**, 3900 Whiteside Ave., Los Angeles, Calif. LB, $3,898,000, research hangar and laboratory Inv. L-5820, Edwards Air Force Base, MUROC, CALIF. National Advisory Com. for Aeronautics, Bldg. 1195, Langley Field, Va. Bids Nov. 25. CD 11/7.

Wm. O. Gray, 10911 S. Atlantic Blvd., Lynwood, Calif., LB, $627,698, GYMNASIUM and INDUSTRIAL ARTS BLDG., El Rancho High School, WHITTIER, CALIF. Whittier Union High School Dist., 610 W. Philadelphia St., Whittier, Calif. Bids Dec. 1. CD 11/19.

BUILDINGS

LOW BIDS AND CONTRACTS

English Elec. Export & Trading Co. Ltd., 23 Beaver St., New York, N. Y., LB, $691,620, two 230-kv transformers for proposed City Light Shoreline SUB-STATION, SEATTLE, WASH. City, County-City Bldg., Seattle, Zone 4, Wash. CD 10/16/51.

R. J. Daum Constr. Co., 6803 West Blvd., Inglewood, Calif., LB, $975,541, est. $752,096 HIGH SCHOOL, CALEXICO, CALIF. Calexico Union High School Dist., Calexico Calif. Bids Dec. 2. CD 11/5.

▲ **Ford J. Twaits Co. & Morrison-Knudsen Co.**, 449 S. Beaudry St., Los Angeles, Calif., LB, $6,142,548, 8 story POLICE FACILITIES BLDG., LOS ANGELES, CALIF. City, City Hall, Los Angeles, Calif. Bids Dec. 10. CD 11/5.

† **MacDonald, Young & Nelson Inc.**, 351 California St., San Francisco, Calif., LB. $719,000 addnl. smokeless powder MAGAZINES, U. S. Naval Magazine, NOY 75194, Spec. 36088, PORT CHICAGO, CALIF. Twelfth Naval Dist., San Bruno, Calif. Bids Dec. 3. CD 11/20.

CANADA

BIDS ASKED—HEAVY CONSTRUCTION

BIDS ASKED—BUILDINGS

▲ **Ont., Toronto**—RETAIL STORE—Bids Asked—S. S. Kresge Co. Ltd., 7 Carlton St., (selected list of bidders) 6 story retail store, Yonge and Richmond Sts. $1,000,000. G. A. McElroy, 152 Pitt St. W., Windsor, archts. CD 3/18/47.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Standard Iron & Engineering Works, Ltd., 107 Ave. and 120 St., Edmonton, Alta., CA. $600,000. O. R. MESS Scheme at R.C.A.F. Station, COLD LAKE, ALTA. Defence Constr. Ltd., 400 Kensington Bldg., Winnipeg, Man.

▲ **NOVA SCOTIA**—Province of Nova Scotia, Halifax, H. H. Latimer, 43 Charlest St., Truro, N. S., CA, Approx. $79,050 reconstr. sub-grade and grav. surf. 6.2 mi. Kempt to Maitland;

Martells Constr. Ltd., 7 Pepett St., North Sydney, N. S., CA, Approx. $95,000, reconstr. sub-grade and grav. surf. 7½ mi. Brazil Lake Road to Carleton;

Chisholm Constr. Co. Ltd., Antigonish, N. S., CA, Approx. $937,000, sub-grade and grav. surf. 7½ mi. Truemanville to Shinimicas. Grand total Approx. $1,111,-050.

Canadian Dredge & Dock Co. Ltd., Harbor Commission Bldg., Toronto, Ont., CA, $688,669, rubble mound breakwater, harbor imprvs., FORT WILLIAM, ONT. Dpt. P. Wks., Hunter Bldg., Ottawa, Ont. Bids Oct. 15. CD 10/21, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

H. J. McFarland Constr. Co., Talbot St., Picton, Ont., CA, $710,553, two story, U-shaped SCHOOL main part 60x300 ft., wings 40x100 ft., and 63x64 ft., steel, brick, PICTON, ONT. Prince Edward District Collegiate Institute Bd., R. R. 1, Cherry Valley, Picton, Ont. Bids Oct. 31, awarded Dec. 3. CD 10/17.

J. H. Ross Constr. Co., 409 Duplex Ave., Toronto, Ont., CA, $300,000-$400,000, 4 story, 45x260 ft., concrete block brick APARTMENT, 997 O'Connor Dr., TORONTO, ONT. Dome Investment Co., c/o contractor. Crang & Boake 2 Regal Rd., Toronto, Ont., archts. Awarded Dec. 5.

Colonial Constr. Ltd., 234 Drummond Bldg., Montreal, Que., Owner Builds, $460,000. 50 DWELLINGS, DORVAL, QUE.

Bayview Constr. Ltd., Dorval, Que. Owner Builds. $650,000 25 BUNGALOWS, St. Joseph Blvd. near Des Lilas Ave., DORVAL, QUE.

Douglas Brenner Constr. Ltd., 5965 Monkland Ave., Montreal, Que., CA, $500,000, WAREHOUSE and OFFICES, Laurentian Blvd. above Cote de Liesse Road, ST. LAURENT, QUE. George Weston Ltd. and subsidiaries, 25 King St. W., Toronto, Ont. J. C. Meadowcroft, 4115 Sherbrooke St., Montreal, Que., archts.

ALASKA

BIDS ASKED—HEAVY CONSTRUCTION

▲† **Alaska**—HOSPITAL—B.A. 1/14—U. S. Eng., 3013 Arcade Bldg., Seattle, 1 Wash., 7 story, 173x172 ft., 40x366 ft., 87x108 ft., rein.-con. hospital, Elmendorf Air Force Base, Inv. ENG 95-507-53-34. $9,800,000. Plans deposit $50. Skidmore, Owings & Merrill, 1 Montgomery St., San Francisco, Calif., archts. CD 11/26.

HEAVY CONSTRUCTION

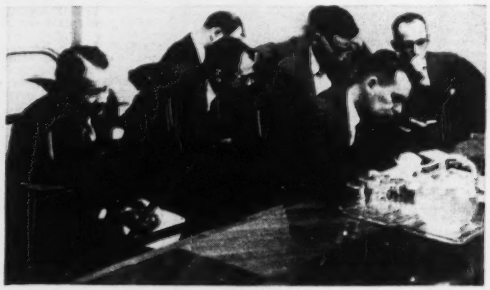
LOW BIDS AND CONTRACTS

▲† **Selid Constr. Co.**, Fairbanks, Alaska, LB $2,817,500, supplying concrete, aggregates and grout for constr. work, Unit 1, Ladd Air Force Base;

Lease & Leigland and M-B Contg. Co., 1501 N. 35 St., Seattle 3, Wash., LB $2,427,200, Unit 2, supply concrete aggregates and grout for constr. work, Eielson Air Force Base, ALASKA. U. S. Eng., Anchorage, Alaska, Bids Dec. 2.

Proposal Advertisements see p. 106 to 108)

1 "ANY MORE BIDS?" Howard S. Cullman calls—for the record—during the tense moment before opening.

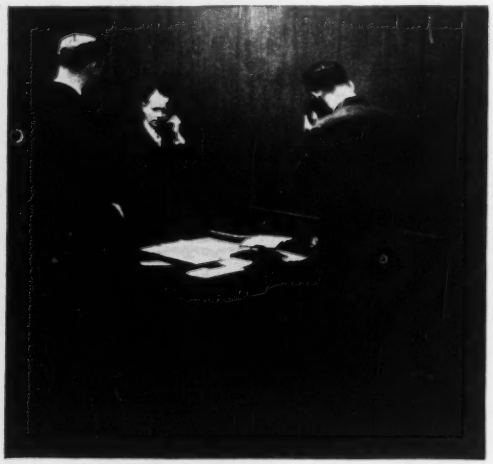


2 BID IS PUBLIC RECORD—Syndicate representatives recheck figures. Henry Kahkonen (left) of Harriman, Ripley watches intently.

3 ACCEPT OR REJECT?—Decision is made behind closed doors while syndicate representatives wait anxiously outside.

$35 million bonds sold in uneasy market

4 ACCEPTED by Commissioner S. Sloan Colt (seated right) and Cullman, Kahkonen and W. F. Dore of Halsey, Stuart.



5 "START RESELLING," Kahkonen says, "the bonds are ours now." (ENR photos by Compton)

The Port of New York Authority last week walked into a tight money market and for $34.5 million sold consolidated bonds with a par value of $35 million. The bond sale was important to the construction industry in at least three ways.

Of immediate importance is the fact that the bond sale will provide money for capital improvements at airports and marine terminals and for improvements to the George Washington Bridge and the Port Authority Building. In addition, some of the proceeds of the bond sale will be used to pay for initial construction of the third tube of the Lincoln Tunnel.

In at least one respect, the Port Authority bond sale may serve as a bellwether for municipal bond financing.

The interest cost was high, 3.066%. This compared with a low of 1.358% in February 1946, and the cost of the previous issue, 2.321% in November 1950. This indicates that municipal revenue bonds of a comparable type may not find an eager market in the immediate future.

As an indication of how closely this sale was watched, during the short period while legal steps were being taken to accept the bid a rumor swept through Wall Street that PNYA would reject the bid (the only one offered).

Officials of the Port Authority were kept busy denying telephone inquiries during the half-hour acceptance ceremonies. Part of this interest stemmed from the fact that the $35-million offering was a big piece of the $180 million in bonds due to be marketed in the next 30 days.

There was another unusual twist to the bond sale; because of PNYA's size, its issuance of a consolidated-type revenue bond was expected to encourage other quasi-public authorities to follow suit.

• **New-type bond**—The $35-million par value consolidated bonds, first series, due 1982, were purchased by a syndicate headed by Harriman, Ripley & Co., Inc.; Halsey, Stuart & Co., Inc.; Blyth & Co., Inc.; Drexel Co., Glore, Forgan & Co.; Ladenburg, Thalmann & Co.

Basically, the difference between the former bonds issued and the consolidated bonds is this:

Three types of bonds were issued previously by the port authority—general and refunding, air terminal, and marine terminal bonds. These bonds were paid from revenues of the respective facilities. For example, revenues from La Guardia and Idlewild airports went into the fund solely to pay off airport bonds.

The new consolidated bonds, in effect, pool all the revenues from all PNYA facilities. This permits the authority to spend construction funds for various facilities with more flexibility than has been possible in the past.

These new bonds will be secured by a lien on net revenues of all port authority facilities. A major feature of the current bond issue is a covenant made by the port authority not to issue any more general refunding, air terminal or marine terminal bonds. All bonds in the future will be of the consolidated revenue type.

• **Previous bond issues**—Since 1921, when it was established, PNYA has

How does a bond syndicate form?

A step-by-step analysis of the patterning and sale of the Port Authority's consolidated bond issue will explain how a bond syndicate is congealed from a loose alignment of investment banking houses.

The story is a typical one.

Months ago officials of the Port Authority talked with representatives of a handful of investment banking houses with whom they had dealt in offering previous bond issues. Because they planned a new type of issue, the Port Authority men explained their ideas and sought advice on factors which would assure salability of the bonds.

About a month ago the authority formally announced its bond issue, a single offering of $35 million. Its size caused an immediate reshuffling of the five or six syndicates which habitually had bid separately for authority bonds, compacting them into two big groups, and effecting certain realignments in the syndicates which bond men admit have been needed for some time.

A week before the formal sale, the syndicates were busy making an exhaustive check of the bond market to determine the degree of acceptability of the new bonds. In this case no preselling occurred, and, what's more, there was a notable lack of enthusiasm by banks and insurance companies and other regular bond purchasers. Reasons given were a generally queasy feeling of the market and the end-of-the-year closing of the books of most of the would-be buyers.

The day before the sale, meetings were held by the two syndicates, which by this time had been weeded down to about 80 members in the group headed by Harriman, Ripley and Co., Inc., and about 150 firms in the combine led by Halsey, Stuart and Co., Inc.

Each syndicate found that it lacked the strength needed to make a sound, high bid for the bonds. Rather than risk the possibility of submitting bids unacceptable to the authority, and because they felt that their early part in shaping the bond issue made them somewhat responsible for its success, the two groups merged into a single syndicate with the underwriting power needed for a reasonable bid.

Mergers are exceptions rather than the rule. Competitive bidding by groups straining their underwriting power to the limit to obtain an attractive issue is said to result in comparatively low bids. This stems from the desire of bidders to compensate themselves in proportion to the added risk they take. A merger means less risk, less profit.

Within minutes after the solitary bid had been accepted by the authority, word swept through the financial district, and buyers, who previously had been cold to the issue, picked up their telephones and bought heavily. The magic news of the last-minute merger seemingly had restored the confidence of buyers who the day before had been smacking their lips over the prospect of two worried syndicates fighting without much enthusiasm over an issue which everybody, in retrospect, knew was sound.

Year-end closing of books and general tightness of money were forgotten as banks gobbled up the issue. The big advertisement in the New York newspapers the following morning, announcing availability of the bonds, was valuable chiefly from an institutional standpoint and for the record. The names of the chief members of the syndicate were listed according to their carefully determined ranking in the municipal bond field—no simple task—and the quiet dignity of the ad bespoke none of the months of tension and sometimes discouraging effort which had made the issue a success.

But the syndicate had no merchandise to back up its ad; the bonds had already been sold out many hours before publication.

issued $729 million in revenue bonds. Of this amount, about $223 million is still outstanding. PNYA's 17 facilities in the two states (New York and New Jersey) represent an estimated $405-million investment.

This is a big investment, but the construction needs of the next 10 years are even greater. In the next decade, PNYA will need $500 million for construction.

This includes:

- $90 million for the third tube of the Lincoln Tunnel.
- An entirely new, two-tube, trans-Hudson tunnel which will cost at least $200 million.
- Construction of three new piers on the Hoboken waterfront.
- Other terminal and transportation improvements in the two states.

• **Seller of the bonds**—PNYA, which sold the bonds, is a large (3,000 employees), bi-state organization run by a 12-man commission, of which Howard S. Cullman is chairman.

In its 31 years of existence, PNYA has purchased or built—and operated—such diverse facilities as the Lincoln and Holland Tunnels, La Guardia, Idlewild and Newark Airports, Port Newark, a grain terminal in Brooklyn, the George Washington Bridge and the Port Authority Bus Terminal.

The commissioners

Howard S. Cullman, chairman of the board of commissioners, PNYA, has had 25 years on the board. Like the other 11 commissioners he serves without pay. He has been chairman eight years.

Cullman is vice-president of Cullman Bros., Inc., cigar leaf tobacco merchants; vice-president of Tobacco and Allied Stocks, Inc.; and president of the Cigar Institute of America, Inc. He is chairman of the board of both the Equitable Office Building Corp. and the Chanin Building, president of the 1697 Broadway Realty Co., and a director of numerous other firms.

His community and charitable interests are extensive, and he is known as a backer of successful Broadway shows.

The other commissioners from New York are: Eugene F. Moran; Bayard F. Pope; S. Sloan Colt; Charles S. Hamilton, Jr.; Charles H. Sells.

Commissioners from New Jersey are: Joseph M. Byrne, Jr., vice chairman; Frank D. Abell; Donald V. Lowe; F. Palmer Armstrong; Horace K. Corbin; John Borg.

Austin J. Tobin is the executive director of the authority.

Dam bids to be opened Jan. 30

Gavins Point Dam across the Missouri River near Yankton, S. D., will become a functioning structure under a single contract soon to be awarded by the Omaha District Office of Army Engineers.

Percentage-wise, the dam will be advanced from its present status of 15% to 75% of completion.

Little more than half of the dam's foundation has been constructed. Completion of the contract will see the dam re-regulating flows from the Fort Randall Dam 75 mi upstream.

The contract, on which bids will be opened Jan. 30 in Omaha, calls for completion of the embankment, construction of the spillway and building the powerhouse substructure, said Col. Hubert S. Miller, Omaha district chief.

The quantities involve 7,500,000 cu yds of excavation, more than 300,000 cu yds of concrete and more than 3,500 tons of reinforcing steel and other metal.

About 4,500,000 cu yds of rolled earth and chalk will be placed under the embankment portion, bringing the dam to its ultimate 74 ft height and 8,700 ft length. Closure is also included under this schedule.

The spillway contract calls for placing 179,000 cu yds of concrete and 3,250 tons of reinforcing steel. The chute, to be flanked by two concrete training walls, will be 664 ft wide and 837 ft long. Fourteen gates, each 40 by 30, will line the spillway crest.

The powerhouse substructure, including the intake, will include 127,000 cu yds of concrete and almost 500 tons of reinforcing steel and other metals. It will be 187 ft wide and 335 ft long. The three 33,333 kw generating units will be installed under another contract.

Work is expected to be under way by early spring. Bids will be taken separately or on a lump sum basis. Completion of the powerhouse substructure and spillway has been set for May, 1955. The embankment is to be finished in November, 1955.

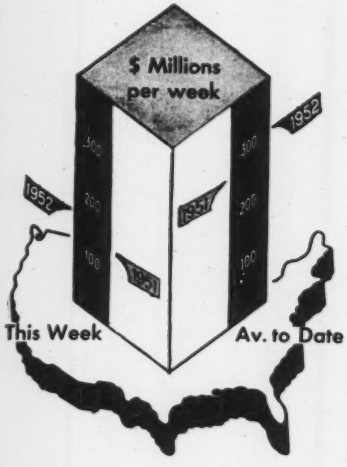
Korean veterans get home loan guarantee

Amendments to the so-called "G.I. bill" that went into effect Dec. 8 contain a point of great interest to homebuilders, the National Savings and Loan League pointed out last week.

Of particular interest are provisions that all veterans of the Korean war are entitled to the full $4,000 guarantee on home purchase mortgages, even though, as veterans of World War II, they may have received such a benefit previously.

Activity This Week

As reported to ENR (in millions of dollars)



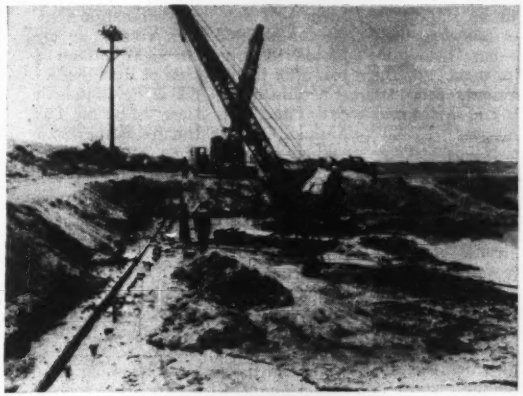
Contracts by type of work

	This Week	Cumulative 51 wks 1952	1951	% chge
Waterworks	$3.5	$219.9	$206.5	+6
Sewerage	2.2	300.0	329.8	−9
Bridges	3.6	409.1	314.5	+30
Highways	8.0	1,391.0	1,152.6	+21
Earthwork, waterways	2.3	477.8	503.2	−5
Buildings:				
Public	28.8	4,282.7	2,036.0	+110
Housg., pub.	13.1	602.8	628.4	−4
Housg., priv.	59.0	2,965.2	1,985.3	+49
Commercial	15.2	827.2	594.0	+39
Industrial	12.2	2,691.4	4,072.6	−34
Unclassified	19.4	1,367.7	1,609.0	−15
Total	$167.3	$15,534.8	$13,431.9	+16

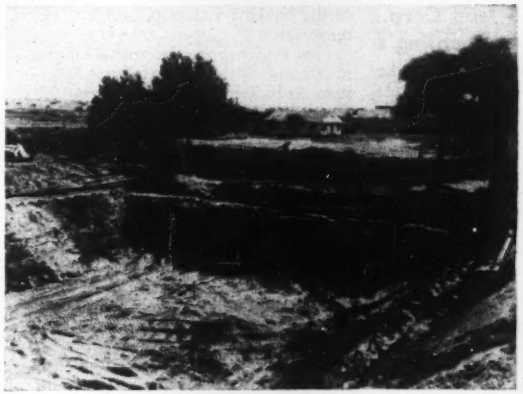
NOTE: Minimum size projects included are: Waterworks and waterway projects, $34,000; other public works, $60,000; industrial buildings, $82,000; other buildings, $300,000.

ENR indexes		Base Year = 100 1913	1926	1949
Constr. cost	Dec.	587.49	282.41	123.16
	Nov.	588.61	282.94	123.39
Bldg. cost	Dec.	425.26	229.88	120.88
	Nov.	426.04	230.30	121.10
Volume	Nov.	504	205	146

STANG WELLPOINTS IN YUMA, ARIZONA LOWER CONSTRUCTION COST



BEFORE: Need for dewatering is obvious. Note beginning of ramp at right.



AFTER: Completed excavation for new forebay and pump-pit for Yuma County Water Users' Association. Note dry excavation going well below surface of nearby drainage canal.

An additional benefit from the use of wellpoints was obtained on this new Boundary Pumping Plant excavation owned and constructed by the Yuma County Water Users' Association, Arizona, Harry S. Riddell, Project Manager.

Due to the close proximity of the drainage canal (background, lower photo) and the high ground water level in this extremely unstable material, dewatering was an absolute essential.

Stang wellpoints were installed with header at ground water level. As ground was drained, and excavation progressed, a ramp (right, top photo) was built into the pit. This made it possible to use the most economical equipment units for disposal of excavated material. Only alternative to wellpointing would have been a sheeted excavation which would have required a clamshell bucket and been far more costly than the use of carryalls.

Note in lower photo the dry completed excavation. The old forebay and pump-pit, visible adjacent to the excavation, were kept in continuous operation and in a stable condition during the construction period.

●

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Telephone: Broadway 4382

OMAHA, NEBRASKA
2123 South 56th Street
Telephone: Walnut 7796

Insurance companies urged to back commercial building

Life insurance companies were urged last week to make more loans for apartment houses, office buildings and shopping centers—and less for single-family housing.

George W. Warnecke, president of the national mortgage investment firm bearing his name, was the latest to advise investment in commercial building.

Warnecke said investment-type properties have two major drawbacks: (1) a costly staff is needed to evaluate them; and (2) the large amounts of construction money involved often go beyond the limits set for individual companies.

But these handicaps can be overcome, by the growing availability of experienced organizations underwriting these loans on a net yield basis; and the increasing practice of pooling investment capital of several companies for a single project, Warnecke asserted.

The extent to which the insurance companies were involved in the financing of the 1951 housing boom was pointed up by a survey of the Home Loan Bank Board.

There are two ways in which the insurance companies enter the home financing field. The first, and by far the most important, is through purchase of mortgages originally granted by banks, savings and loan associations and others. In this way, the insurance companies act as a secondary market.

The second method—which generally applies only to large-scale developments—is by taking the mortgages directly.

The Home Loan Bank Board found that life insurance companies last year invested 55.4% of their $19.4-billion mortgage holdings in 1-to-4 family homes. While the board found that only 15% was invested in multiple housing and 21.1% in commercial building.

• **The foreclosure problem**—Noting a softening of prices for single-family housing and continued stability of investment-type property values, Warnecke said:

"Unless mortgages on single-family housing have been . . . carefully underwritten as to the credit of the borrower and have been aged five years or more, there is the probability of having an unusually heavy percentage of foreclosures when compared with an equal dollar volume of mortgages on investment type properties."

This view—that commercial buildings are less likely to be subject to foreclosure in time of recession than single-family homes—has been debated by real estate men, government officials, investment specialists and others since the end of World War II.

Government officials—particularly those in the Federal Housing Administration and Veterans Administration—contend that the comparatively small number of foreclosures to date on federally insured loans show that these home mortgages were sound.

But others reject this view, pointing out that the insured-loan program has operated to date in a period of prosperity, with high levels of employment, continued housing demand and increased property values.

The foreclosure rate might jump suddenly if a recession occurred, some realtors believe.

Colorado Fuel & Iron Corp. to purchase J. A. Roebling's

Subject to completion of details, the entire manufacturing business, plants and inventories of John A. Roebling's Sons Co. will be purchased on Dec. 31 by a wholly owned subsidiary of Colorado Fuel & Iron Corp.

Roebling, founded in 1841 by Brooklyn Bridge builder John A. Roebling, produces wire rope, cable, and a variety of steel and copper round and shaped wires, and bridge products. The business will be operated as a subsidiary of CF&I and Charles R. Tyson, Roebling president since 1944, will continue to direct operations of the plants at Trenton and Roebling, N. J.

Colorado Fuel & Iron is the nation's ninth largest steel producer and its main plant is in Pueblo, Colo. The Roebling Company is the fifth acquisition of CF&I in the iron, steel, wire products and cable business since 1937. In that year it brought out the California Wire Cloth Co. and its then wholly owned subsidiary, Pacific Steel & Wire Co. Wickwire Spencer Steel Co. was acquired in October, 1945, and in March, 1951, CF&I completed negotiations for acquisition of Worth Steel Co. for $14 million. That company now operates as a subsidiary under the name of Claymont Steel Corp. (Del.)

The latest previous transaction was in January, 1952, when CF&I took over the property and assets of E. & G. Brooke Iron Co. in Birdsboro, Pa. That concern now operates as the E. & G. Brooke Division of the parent company.

According to Colorado's president, Alvin F. Franz, the corporation's total consolidated sales volume is expected to approach $300 million a year after the purchase of Roebling's.

Meanwhile CF&I is developing a coal mine, the Allen Mine in Las Animas, Colo. Estimated cost is $6.5 million and the mine is expected to reach full production in 1956.

Housing bonds face market trouble

Insistence on low interest rates—plus a complicated squabble over legality of a contract—last week blocked sale of more than $2 million in Milwaukee housing bonds, and reflected a break in the hitherto booming market for municipal securities.

The two developments were closely tied to mark a danger point for construction financing in this field, and to emphasize the long-time complaints of the banking fraternity over low interest rates.

First evidence was the virtual failure in attempts to sell notes totaling more than $116.3 million. Offered by 52 housing authorities, only about $27 million were bought in, despite the fact that these notes have the backing of the federal government.

A notable group of banking houses and investors refused to submit any bids on the notes at all—explaining that the 1.2% interest rate permitted by the U. S. Public Housing Authority provided too little profit to make purchase of the bonds a worthwhile venture.

• **Milwaukee has troubles**—The failure to sell the Milwaukee bonds—issued by the Milwaukee Housing Authority—was closely tied to this occurrence.

Officials explained that when the bonds were first proposed in 1949, a New York City investment firm (Allen & Co.) entered into a contract to purchase the bonds. However, squabbles between the housing authority and the Milwaukee city council delayed issuance of the bonds to the point—the investment firm said—that its original contract to purchase expired, despite an extension.

Company officials added that current low interest rates probably would force sale of the bonds at discounts—thus they became less desirable.

UNIT PRICES

Canyon highway, Colorado

Five bidders competed for a $546,971 contract to construct a roadbed through a very narrow and rocky part of Boulder Canyon, Colorado. The contract, awarded by the U.S. Department of Commerce to Lowdermilk Bros., Denver, provides for a thirty foot graded roadbed starting approximately ¼ mile west of Boulder and extending west for 1.75 miles. Don P. Yarrington is the engineer on the project which is to take 300 calendar days, exclusive of winter shutdown.

Hourly wage rates are: stone masons, $3.175; structural ironworkers, $2.50; and laborers, $1.70.

Bidders include:

1C	Lowdermilk Bros., Denver, Colorado	$546,971
2	Hinman Bros. Constr. Co., Denver, Colorado	552,850
5	Platt Rogers, Inc., Pueblo, Colorado	597,007

Bids: 10-28-52 Items	Unit	Quantity	Unit Prices 1C	2
Misc force account work as authorized to be paid for as earned	es*	1	$1,000	$1,000
Uncl excavation	cy	194,000	2.00	1.99
Uncl exc for structures	cy	1,270	7.50	11.00
Uncl exc for borrow, case 1	cy	17,000	0.75	1.10
Overhaul	stay	120,000	0.03	0.02
Overhaul	cy-m	900	0.40	0.30
Subbase material	t	8,000	1.50	1.70
Cl A conc (air-entrained conc, low-alkali cmt)	cy	997	70.00	69.00
Reinforcing steel	lb	188,600	0.14	0.15
Str stl, furn, fabricated, & erected	lb	1,250	1.00	0.50
Cmt rubble masonry	cy	20	150.00	70.00
CGSM culvert pipe, 24"	lf	732	6.00	6.50
30"	lf	202	7.50	8.10
48"	lf	78	17.50	16.10
Conc maint marker posts	ea	10	15.00	13.00
Barbed wire fence, type 2	lf	1,000	0.50	0.26
Timber guide posts with warning reflec (tr)	ea	170	8.00	6.90
Metal flume	lf	175	15.00	13.00
Intake box & headgate	ls	1	500.00	700.00
Railing	lf	459	15.00	12.10

* Contingent sum

Bituminous highway, Maine

Close bidding characterized the competition for a $524,751 contract awarded by the Maine State Highway Commission for work on U.S. 1 in Northport. Among the six bidders, the high bid was only 8% above the low, and each of the other bids was less than 1% above the one below it.

The contract, awarded to H. E. Sargent, Inc., Stillwater, Maine, calls for 6.65 miles of 24 ft. bituminous concrete pavement, started in November and to be finished in 145 working days. C. M. Ellis is the engineer.

Bidders include:

1C	H. E. Sargent, Inc., Stillwater, Maine	$524,751
2	W. H. Hinman, Inc., North Anson, Maine	527,901
6	A. P. Wyman, Inc., Waterville, Maine	565,435

Bids: 10-22-52 Items	Unit	Quantity	Unit Prices 1C	2
Clearing	ac	17	$440.00	$450.00
Earth excavation	cy	35,000	1.40	1.30
Rock excavation	cy	1,400	4.50	3.90
Trees removed	ea	10	50.00	50.00
Stripping pits	cy	800	0.30	0.30
Exc for structures	cy	1,500	3.00	2.60
Rock exc for structures	cy	300	20.00	13.00
Common borrow	cy	1,000	0.70	1.25
Gravel shoulder	cy	3,050	2.00	1.75
Gravel base course	cy	62,000	1.20	1.50
Base outlets	cy	50	3.00	4.00
Crushed st base crse	t	25,600	5.00	5.50
Asphalt cement	gal	195,000	0.20	0.16
Surf trtd gravel crse	cy	100	5.00	6.50
Bituminous material	gal	1,100	0.40	0.40
Bit conc surf crse	t	10,800	8.90	8.40
Cl A concrete	cy	59	70.00	71.00
Cl B concrete	cy	82	65.00	56.00
Stl reinf for conc str	lb	4,500	0.15	0.17
15" corr metal pipe	lf	330	2.70	3.00
18" corr metal pipe	lf	50	3.50	3.40
Relaying corr met pipe	lf	750	3.25	0.90
12" ACCMP	lf	300	2.70	2.70
18"	lf	700	4.00	4.00
24"	lf	500	5.50	5.80
30"	lf	30	7.50	8.00
18" reinf conc pipe	lf	200	4.50	4.00
Relaying 18" reinf conc pipe	lf	80	3.50	2.00
Drop inlets, type B	ea	2	225.00	260.00
Catch basins, type A	ea	5	250.00	325.00
Hand-laid riprap	cy	100	8.00	8.00
Undr, type B	lf	2,200	3.00	2.30
Underdrain outlets	lf	300	1.00	1.20
Plank curb	lf	2,800	0.60	0.35
Metal sluice	lf	220	3.10	3.20
WC gd rail-type B	lf	7,700	1.60	1.35
Anchorages	ea	66	25.00	20.00
Guard posts	ea	50	5.00	4.00
Loam borrow	cy	450	3.50	3.20
Sodding	sy	1,800	1.60	1.30
Right of way monuments	ea	140	10.00	10.00
Sprinkling units	ea	100	5.00	5.00
Undr outlet markers	ea	6	5.00	3.00
Traffic officers	mh	4,000	1.25	1.30
Fencing	lf	1,000	0.60	0.40
Gravel overhaul	ym	391,000	0.10	0.10
Calcium chloride	t	15	90.00	80.00
Granite edging	lf	450	4.00	5.00
Scarifying	sy	1,000	0.50	0.30
Hay mulch	t	20	70.00	65.00
Culvert connections	ea	50	30.00	13.00

Lock controls, New Jersey

The Delaware and Raritan Canal near Weston, N. J. is the site for construction of a reinforced concrete headwall incorporating three rectangular sluice gates, 36" x 48" and new construction within the walls of the existing stone masonry lock chamber, 24' wide, 23' long, and 19' deep. The job includes about 120 linear feet of steel sheet piling in upstream wingwalls, and repair of masonry in the original lock chamber. Robert L. Hardman, Trenton, is the engineer on the $54,167 contract which was awarded by the State of New Jersey to the Delaware Construction and Landscape Co.

Hourly wage rates are: stone masons, $3.35; carpenters, $2.50; and laborers, $2.05.

Bidders include:

1C	Delaware Construction and Landscape Co., Trenton, N. J.	$54,167
2	J. W. Thompson Co., Trenton, N. J.	58,925
6	Franklin Contracting Co., Newark, N. J.	79,000

Bids: 11-13-52 Items	Unit	Quantity	Unit Prices 1C	2
Cofferdams & pumping	ls	1	$5,000	$9,000
Removal of existing structures	ls	1	1,000	1,500
Foundation excavation	cy	50	10.00	5.00
Rock excavation	cy	15	25.00	25.00
Cl D concrete	cy	125	46.00	30.00
Cl B concrete	cy	125	72.00	70.00
Reinforcing steel	lb	4,000	0.22	0.22
Steel sheet piling	sf	2,600	3.25	5.20
Install sluice gates	ea	5	160.00	100.00
Repair masonry in lock chamber	ls	1	16,912	14,900
Cleanup	ls	1	500.00	500.00
Contingencies	ls	1	5,000	5,000

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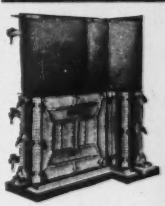

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Bids: January 6, 1953

Construction of Five Piers and Two Abutments

Sealed proposals will be received by the West Virginia Turnpike Commission for:

CONTRACT NO. 12

The work to be done under this Contract consists generally of the construction of the five piers and two abutments for the Fourmile Fork Bridge between Station 1420+03 and Station 1432+65 near Standard in Kanawha County, West Virginia, all in connection with the construction of the West Virginia Turnpike in the State of West Virginia.

The principal items of work include:

	Approximate Quantity
Excavation	4,100 cu. yds.
Concrete	2,860 cu. yds.
Reinforcing Steel	193,000 lbs.

Proposals will be received at the office of the West Virginia Turnpike Commission, 1340 Wilson Street, Charleston 5, West Virginia until 9:00 A.M. Eastern Standard Time, and thereafter at the Woman's Club of Charleston, Virginia and Elizabeth Streets, Charleston, West Virginia until 10:00 A.M. Eastern Standard Time, on January 6, 1953, at which time and place said proposals will be publicly opened and read.

Contract documents may be seen and may be inspected by prospective bidders during office hours, after December 12, 1952, at the office of Howard, Needles, Tammen & Bergendoff, 804 Greenbrier Street, Charleston, West Virginia and 55 Liberty Street, New York 5, N. Y.

Contract plans and specifications will be furnished for Fifteen Dollars ($15.00) for each set, which is not refundable, upon application to Howard, Needles, Tammen & Bergendoff, 804 Greenbrier Street, Charleston, West Virginia. (Mailing address P. O. Box 5266, Charleston, W. Va.). Make checks payable to Howard, Needles, Tammen & Bergendoff.

Proposals must be made upon the proposal forms furnished by the Commission in the manner designated in the Specifications, and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and the number of the contract on the outside, and must be accompanied by a CASHIER'S or CERTIFIED CHECK or PROPOSAL BOND in favor of the West Virginia Turnpike Commission FOR NOT LESS THAN FIVE (5) PER CENT OF THE AMOUNT OF THE PROPOSAL, but not less than $500.00 nor more than $200,00.00 and must be delivered at the place designated above on or before the day and hour named. Copies of the proposal form and proposal bond form to be used for submitting proposals, and of the special addressed envelope are furnished in detached form with the contract documents.

The contract will be awarded or the proposals rejected within thirty (30) days from the date of opening proposals. The right is reserved to reject any or all proposals, and to waive any or all formalities.

WEST VIRGINIA TURNPIKE COMMISSION
D. Holmes Morton, Chairman

December 5, 1952

Bids: January 6, 1952

Grading and Drainage on Turnpike

WEST VIRGINIA TURNPIKE COMMISSION

Sealed proposals will be received by the West Virginia Turnpike Commission for:

CONTRACT NO. 9

The work to be done under this Contract consists in performing the required grading and drainage for approximately 5.1 miles of the West Virginia Turnpike including marginal roads and the substructures for five overpasses. This work is located between the Town of Ghent, mile 20, and the vicinity of the overpass at Route 40, mile 25, Raleigh County, West Virginia, and is in connection with the construction of the West Virginia Turnpike in the State of West Virginia.

The principal items of work include:

	Approximate Quantity
Clearing and grubbing	80 acres
Excavation (all types)	800,000 c. y.
Embankment	781,000 c. y.
Concrete	5,300 c. y.
Reinforcing Steel	582,300 lbs.
Culvert pipes and underdrains	9,700 l. f.

Proposals will be received at the office of the West Virginia Turnpike Commission, 1340 Wilson Street, Charleston 5, West Virginia until 9:00 A.M., Eastern Standard Time, and thereafter at the Women's Club of Charleston, Virginia and Elizabeth Streets, Charleston, West Virginia until 10:00 A.M., Eastern Standard Time, on January 6, 1953, at which time and place said proposals will be publicly opened and read.

Contract documents may be seen and may be inspected by prospective bidders during office hours, after December 9, 1952, at the office of Howard, Needles, Tammen & Bergendoff, 804 Greenbrier Street, Charleston, West Virginia, and at the offices of the Engineers, Fay, Spofford and Thorndike, 11 Beacon Street, Boston 8, Mass. and 305 Reservoir Road, Beckley, West Virginia.

Contract plans and specifications will be furnished for Twenty-Five Dollars ($25.00) for each set, which is not refundable, upon application to Howard, Needles, Tammen & Bergendoff, 804 Greenbrier Street, Charleston, West Virginia. Mailing address: P. O. Box 5266, Capitol Station, Charleston, West Virginia. Cross Sections are bound separately and will be furnished for Forty Dollars ($40.00) for each set. Make checks payable to Howard, Needles, Tammen & Bergendoff.

Proposals must be made upon the proposal forms furnished by the Commission in the manner designated in the Specifications, and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and the number of the contract on the outside, and must be accompanied by a CASHIER'S or CERTIFIED CHECK or PROPOSAL BOND in favor of the West Virginia Turnpike Commission FOR NOT LESS THAN (5) PER CENT OF THE AMOUNT OF THE PROPOSAL, but not less than $500.00 nor more than $200,000.00 and must be delivered at the place designated above on or before the day and hour named. Copies of the proposal form and proposal bond form to be used for submitting proposals, and of the special addressed enveloped are furnished in detached form with the contract documents.

The contract will be awarded or the proposals rejected within thirty (30) days from the date of opening proposals. The right is reserved to reject any or all proposals, and to waive any or all formalities.

WEST VIRGINIA TURNPIKE COMMISSION
D. Holmes Morton, Chairman

December 2, 1952

Bids: January 6, 1953

Furnishing & Delivering Equipment of Ventilation for a Tunnel

WEST VIRGINIA TURNPIKE COMMISSION

Sealed proposals will be received by the West Virginia Turnpike Commission for:

CONTRACT NO. 15-A

The work to be done under this Contract consists of the furnishing and delivering of ventilation equipment for a two-lane vehicular tunnel approximately one-half mile long with a ventilation building at each portal to be constructed under other contracts in connection with the construction of the West Virginia Turnpike in the State of West Virginia. The southerly ventilation building of the tunnel is located in the vicinity of Four Mile Fork about one-half mile west of the town of Standard and the northerly ventilation building is located at approximately Mile 68.3 in the vicinity of Giles Creek about one and one-half miles east of the town of Fairfield in Kanawha County, West Virginia.

The installation of the ventilation equipment will be done under another contract.

Proposals will be received at the office of the West Virginia Turnpike Commission, 1340 Wilson Street, Charleston, West Virginia until 9:00 A.M., Eastern Standard Time, and thereafter at the Woman's Club of Charleston, Virginia and Elizabeth Sts., Charleston, West Virginia until 10:00 A.M., Eastern Standard Time, on January 6, 1953, at which time and place said proposals will be publicly opened and read.

Contract documents may be seen and may be inspected by prospective bidders during office hours, after December 5, 1952, at the office of Howard, Needles, Tammen & Bergendoff, 804 Greenbrier Street, Charleston, West Virginia, and at the offices of the Engineers, Singstad & Baillie, 24 State Street, New York, N. Y.

Contract plans and specifications will be furnished for Fifteen Dollars ($15.00) for each set, which is not refundable, upon application to Howard Needles, Tammen & Bergendoff, 804 Greenbrier Street, Charleston, West Virginia. Mailing address: P. O. Box 5266, Capitol Station, Charleston, West Virginia. Make checks payable to Howard, Needles, Tammen & Bergendoff.

Proposals must be made upon the proposal forms furnished by the Commission in the manner designated in the Specifications, and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and the number of the contract on the outside, and must be accompanied by a CASHIER'S or CERTIFIED CHECK or PROPOSAL BOND in favor of the West Virginia Turnpike Commission FOR NOT LESS THAN FIVE (5) PER CENT OF THE AMOUNT OF THE PROPOSAL, but not less than $500.00 nor more than $200,000.00 and must be delivered at the place designated above on or before the day and hour named. Copies of the proposal form and proposal bond form to be used for submitting proposals, and of the special addressed envelope are furnished in detached form with the contract documents.

The contract will be awarded or the proposals rejected within thirty (30) days from the date of opening proposals. The right is reserved to reject any or all proposals, and to waive any or all formalities.

WEST VIRGINIA TURNPIKE COMMISSION
D. Holmes Morton, Chairman

December 2, 1952

Bids: December 30, 1952

Gasoline-Engine Generator Sets

CONTRACT 437

SEALED BIDS will be received by the Board of Water Supply, at its offices, thirteenth floor, 120 Wall Street, New York City, until 11:00 A.M., Eastern Standard Time, on Tuesday, December 30, 1952, for Contract 437, for furnishing, testing, delivering and unloading gasoline-engine generator sets with switchgear and appurtenances for the West Branch and the Kensico South effluent chambers of the Delaware Aqueduct, all as set forth in the specifications.

No bid will be received and deposited unless accompanied by a certified check upon a National or State bank, drawn and made payable to the order of the Comptroller of The City of New York, in the amount of two thousand dollars ($2,000.00), for the proper execution of the contract.

At the above place and time the bids will be publicly opened and read. Pamphlets containing information for bidders, forms of bid and contract, specifications, requirements as to surety, etc., can be obtained in Room 1316 at the above address, upon application in person or by mail, by depositing the sum of five dollars ($5.00) in cash or its equivalent for each pamphlet. Within 30 days following the award of contract or rejection of bids, the full amount of such deposit will be refunded for each pamphlet submitted as a bid and a refund of four dollars ($4.00) will be made for each other pamphlet returned in acceptable condition. For further particulars, apply at the office of the Chief Engineer at the above address.

IRVING V. A. HUIE, President, RUFUS E. McGAHAN, EDWARD C. MAGUIRE, Commissioners, Board of Water Supply; BETTY COHEN, Acting Secretary.

U. S. Government
(Continued from page 106)

SEALED BIDS WILL BE RECEIVED IN THE OFFICE OF THE ENGINEERING AND CONSTRUCTION DIRECTOR, PANAMA CANAL COMPANY, BALBOA HEIGHTS, CANAL ZONE, until 10:00 A.M. EST January 20, 1952 for furnishing all plant, tools, equipment, materials, labor and services, and for performing all work for construction of buildings and appurtenances and alterations to existing building, for Paraiso School at Paraiso, Canal Zone, to be constructed by contract for the Canal Zone Government. Plans and specifications may be obtained from Purchasing Agent, Panama Canal Company, 24 State Street, New York 4, N. Y. Requests should be accompanied by a $30.00 deposit for each set of data. Deposit should be in form of U. S. money order or a certified check made payable to "Treasurer, Panama Canal Company".

Specifications and drawings may be inspected at the following offices:

Panama Canal Company, 101 Indiana Ave., N. W., Washington 25, D. C.

Panama Canal Company, 24 State Street, New York 4, N. Y.

Office of the District Engineer, U. S. Engineer's Office, 1709 Jackson Street, Omaha 2, Nebraska.

Office of the District Engineer, U. S. Engineer's Office, 4735 E. Marginal Way, Seattle 4, Washington.

Office of the District Engineer, U. S. Engineer's Office, Foot of Prytania Street, New Orleans, Louisiana.

Office of the District Engineer, U. S. Engineer's Office, 180 New Montgomery Street, San Francisco 19, California.

Office of the District Engineer, U. S. Engineer's Office, 751 S. Figueroa Street, Los Angeles, California.

Office of the Division Engineer, U. S. Engineer's Office, Southwestern Division, 1114 Commerce Street, Dallas, Texas.

Office of the District Engineer, U. S. Engineer's Office, P. O. Box 1538, Albuquerque, New Mexico.

OFFICIAL PROPOSALS

Bids: December 30, 1952

Route 29, Section 7-E

STATE OF NEW JERSEY
STATE HIGHWAY DEPARTMENT
TRENTON

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Commissioner for:

ROUTE 29, SECTION 7-E

Route 29, Section 7-E, from Mercer Street to Middle Brook, Reconstruction East Bound Roadway, Borough of Somerville and Bridgewater Township, Somerset County. Federal Project No. UI-178(10). Length 3.121 miles. The principal items of construction are:

Estimated:

20,475	cu. yds. Roadway Excavation—Unclassified
13,457	sq. yds. Pavement Excavation
44,430	sq. yds. Breaking Pavement
28,892	cu. yds. Borrow Excavation
50,777	tons Subbase
83,240	sq. yds. 4" Waterbound Macadam Base Course
81,757	sq. yds. 4" Waterbound Macadam Inter. Course
14,100	tons Bituminous Concrete Surface
25,176	lin. ft. White Concrete Curbs Bridge Items
1,259	cu. yds. Foundation Excavation
2,206	cu. yds. Concrete in Structures
174,960	lbs. Reinforcement Steel

Bids for the above will be received at the office of the State Highway Department, Assembly Room, Room 140, in the State Highway Office Building, 1035 Parkway Avenue, Trenton, New Jersey, on Tuesday, December 30, 1952, at eleven o'clock (11:00 A.M.—EASTERN STANDARD TIME), and will be opened and read immediately thereafter.

The receipt and opening of bids is subject to the proper qualification of the bidder in accordance with the provisions of the prequalification law and the regulations adopted by the State Highway Commissioner. Bidders must also submit a revised financial statement and statement of plant and equipment with their bid.

NOTE: The proposed project is a "Federal Aid Project" authorized by the provisions of Title 27 of the Revised Statutes of New Jersey and supplements and by P. L. 769, 81st Congress, and is to be performed in accordance with the special provisions and requirements of the Bureau of Public Roads, Department of Commerce, as outlined in the specifications, which provisions require that labor be employed from lists furnished by the N. J. State Employment Service, 149 W. Main Street, Somerville, New Jersey.

OFFICIAL PROPOSALS

The attention of bidders is directed to the special provisions covering subletting or assigning the contract. The minimum wage paid to all common labor employed on this contract shall be $0.75 per hour. The minimum wage paid to all intermediate grade of labor employed on this contract shall be $1.00 per hour. The minimum wage paid to all skilled labor employed on this contract shall be $1.50 per hour.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Department, Trenton, N. J., and may be inspected by prospective bidders during office hours. Plans will be furnished on a deposit of Ten Dollars ($10.00) for each set of plans upon application to A. Lee Grover, Chief Clerk, State Highway Department, Room 139, State Highway Office Building, 1035 Parkway Avenue, Trenton, N. J. Bids must be made upon the standard proposal forms in the manner designated in the standard State Highway specifications and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and work bid upon on the outside, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten percent (10%) of the amount of the bid, provided that the said certified check shall not be less than $500.00 nor more than $20,000.00 and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

Signed: R. J. Abbott
State Highway Commissioner

Bids: January 3, 1953

Grading, Drainage, Construction of Structures and Paving

OHIO TURNPIKE COMMISSION
361 East Broad Street
Columbus 15, Ohio
Contract No. C-1

Sealed proposals will be received by the Ohio Turnpike Commission for the performance of Contract No. C-1. The work covered by this contract consists generally of the construction of grading, drainage, structures, and paving of approximately 5.2 miles of the Ohio Turnpike beginning at a point about 500' east of South Range-Center Road at Turnpike Centerline Station 1015+00 in Mahoning County, Ohio and extending eastwardly to the Ohio-Pennsylvania State Line at Turnpike Centerline Station 1292+03.83 in Mahoning County, Ohio, and the construction of engineer's office buildings and facilities on or near the site of the work. The principal structures to be built are three reinforced concrete culverts and five steel-beam bridges of from three to five spans each, supported on reinforced concrete abutments and bents. The abutments for four of these bridges are to be on steel piles and for the other bridge on spread footings. The bents are all to be on spread footings.

Approximate quantities of the major items for said construction are as follows:

Roadway Excavation	1,175,400 cu. yds.
Borrow	67,000 cu. yds.
Structural Concrete	6,000 cu. yds.
Reinforcing Steel	867,000 lbs.
Fabricated Structural Steel	1,256,000 lbs.
10" Reinforced Concrete Pavement	147,000 sq. yds.

Copies of the Plans, Specifications, and all other Contract Documents for said contract will be available for public inspection or purchase at the office of the chief engineer, Ohio Turnpike Commission, 361 East Broad Street, Columbus 15, Ohio, not later than December 19, 1952. On or after the aforesaid date, these documents may be purchased from the chief engineer of the Ohio Turnpike Commission for the following sums, which sums are non-returnable:

General Specifications, per set	$5.00
Plans, including soil profiles and boring logs, and other Contract Documents (excluding General Specifications), per set	15.00
Cross Sections, per set	25.00

All proposals must be on the form prescribed by the Commission and must comply with the terms and conditions set forth in the Contract Documents.

Each proposal must be accompanied by a certified check on a solvent bank, payable to the order of the Ohio Turnpike Commission, in an amount not less than 5% of the total amount bid in said proposal. Said certified check will be held by the Commission as a guarantee that, if the proposal is accepted, a contract will be entered into and the performance of the proposal will be secured.

All bids must be received on or before 10:00 o'clock A. M., Eastern Standard Time, January 3, 1953, in the offices of the Ohio Turnpike Commission, 361 East Broad Street, Columbus, Ohio.

Immediately after the closing of bids, the bid box will be removed to the Neil House Hotel, 41 South High Street, Columbus, Ohio, where the bids will be publicly opened and read.

The award of the contract, if it be awarded, will be to the lowest and best bidder whose proposal complies with all prescribed requirements. The Commission reserves the right to reject any and all proposals and to waive technicalities.

DATED December 10, 1952

OHIO TURNPIKE COMMISSION
CD —12(11)-(19)-(26)52
YV —12(12)-(19)52
Eng News-Rec.—(18)-(25) 52

Bids: December 30, 1952

Spec. SM-50

NOTICE TO CONTRACTORS

STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of Highway Law, sealed proposals will be received until 10:30 A.M., Eastern Standard Time, on December 30, 1952 by Henry A. Cohen, Director, Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y. for

SOIL EXPLORATIONS AND FOUNDATION INVESTIGATIONS AT VARIOUS SITES ON THE PALISADES INTERSTATE PARKWAY, GOSHEN, HARRISON, (ROUTE 32) TO OXFORD, (ETC.) ORANGE COUNTY, WHICH CONSTITUTES CONTRACT NO. SPEC. SM-50.

Maps, plans and specifications may be examined and obtained at the following offices:

(a) Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany 1, N. Y.
(b) J. S. Bixby, District Engineer, Pleasant Valley Road, Poughkeepsie, N. Y.
(c) Charles Schaefer, Department of Public Works, 270 Broadway, New York City.

The deposit for a set of plans, specifications and proposal forms is $5.00. A refund in full will be made to bidders for return of one set in good condition within 30 days of award or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

The Engineer's estimate of cost for this work is $29,775.00.

Proposal for this contract must be submitted in a separate sealed envelope with the name of the contract plainly endorsed on the outside of the envelope. Proposal must be accompanied by draft or certified check, payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum of $1,490. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law, as set forth in "Instruction to Bidders".

The right is reserved to reject any or all bids.

B. D. TALLAMY,
Superintendent of Public Works

Bids: January 6, 1953

Outdoor Lighting and Signs Temporary Terminal Building

THE PORT OF NEW YORK AUTHORITY
NEW YORK INTERNATIONAL AIRPORT
CONTRACT NYA-160.030

Sealed proposals for furnishing and installing outdoor lighting and signs at the Temporary Terminal Building at New York International Airport will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 8th Ave., New York 11, until 2:30 P.M. Tuesday, January 6, 1953, at which time and place said proposals will be opened and read.

Contract documents may be seen at the office of the Engineer of Materials, Room 1110, and copies will be furnished upon deposit of $25 per set. Deposit to be delivered to the Treasury Department, Room 1001, where a receipt in duplicate will be issued. A copy of the receipt should then be delivered to the Engineer of Materials who will furnish the contract documents. The deposit will be remitted if the documents are returned in good condition, not later than 30 days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman.
New York, December 18, 1952

(Continued on page 108)

OFFICIAL PROPOSALS
(Continued from page 107)

Bids: December 30, 1952

New York State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of the Highway Law, and Article 2, Title 9 of the Public Authorities Law, and special provisions for projects financed with Federal Aid funds, sealed proposals will be received until ten-thirty o'clock A.M., eastern standard time on the 30th day of December, 1952, by Henry A. Cohen, Director, Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects:

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
		DISTRICT No. 1				
		G. L. NICKERSON, District Engineer, 353 Broadway, Albany, New York				
Schenectady	M. T. 52-18 S. T. 52-35 R. C. 52-123	New York State Thruway-Mohawk Sect., Subd. 1 (Mont. Co. L. Gregg Rd.) Co. Rd. 29R; Crawford Rd.; Gregg Rd.; Camp Patterson-ville Rd.; Rotterdam Water Tower Access Rd.; Patterson-ville Scotch Church S. H. 1482	Thy. 4.77 Acc. 1.50	9" Cem. Conc. Pavt. 2 @ 25' Wide=4.77 Mi. Bit. Mac. Ty. I=1.07 Mi. Found. Crse. Grav.=0.43 Mi. Gr. Sep. Alpha I-Beam 145.3' Gr. Sep. Alpha I-Beam 227' Gr. Sep. Rigid Fr. 31' Alpha I-Beam Bridge 51.8' Conc. Twin Box Bridge 24'	$244,000 Plans $100	$4,428,000
		DISTRICT No. 3				
		WILLIAM ROBINSON, District Engineer, Weigh Lock Bldg., Syracuse, New York				
Cayuga & Onondaga	O. T. 52-21P	New York State Thruway-Ontario Section, Subd. 5A, Acc. 1.33 5B (Port Byron-Jordan); Weedsport Interchange	Thy. 6.52	9" Cem. Conc. Pavt. 2 @ 25' Var. Wide=7.82 Mi. Found. Crse. Grav.=0.03 Mi. Gr. Sep. Alpha I-Beam 206.6'	109,000 Plans $25	1,989,000
		DISTRICT No. 4				
		J. P. LARSEN, District Engineer, Barge Canal Terminal, Rochester, New York				
Monroe	O. T. 52-24 R. C. 52-121	New York State Thruway-Ontario Sect., Subd. 8B&9 (Rochester So.-Route US 15 Interchange); West Henrietta-Rochester S. H. 62	Thy. 2.52 Acc. 0.77	9" Cem. Conc. Pavt. Var. Wide=3.22 Mi. Found. Crse. Grav.=0.03 Mi. Grading=0.04 Mi. Gr. Sep. Alpha I-Beam 210'	35,000 Plans $15	637,000
		DISTRICT No. 7				
		C. C. CASSEL, District Engineer, 444 Van Duzee St., Watertown, New York				
Franklin	FARC 52-118 R. C. 52-119	Saranac Lake Village: Broadway & River Sts. S. H. 1222 Saranac Lake-Lake Clear Junction Pt. 1 S. H. 1090 Proj. U-644(3)	1.80	Asph. Conc. Ty. 1A Opt.	16,000 Plans $10	281,000
Jefferson	FAC 52-17	West Main St.: City of Watertown Proj. U-1106(1)	0.75	Asph. Conc. Ty. 1A Opt.=0.71 Mi. Misc. Work=0.04 Mi.	20,000 Plans $15	386,000
		DISTRICT No. 10				
		J. J. DARCY, District Engineer, Montauk Highway, Babylon, Long Island, New York				
	FAMDE 52-5	Major Deegan Expressway & Contract 6 Project U-1082(12)	1.29 Exp. 0.28 Acc.	Grading Drainage & Misc. Work = 1.29 Mi. Sheet Asp. Pavt. = 0.12 Mi. Cem. Conc. Pavt. = 0.16 Mi. Hy. Sep. Alpha I-Beam 119.69' Hy. Sep. Alpha I-Beam 98.55'	415,000 Plans $100	7,505,000
Bronx	FAMDE 52-6	Major Deegan Expressway (Contract 13) (Interchang at Grand Concourse) Proj. U-1082(6)	1.22	Granite Block Pavt=0.19 Mi. 9" Cem. Conc. Pavt. 2 @ 32' Wide=0.88 Mi. Misc. Work=0.15 Mi. Gr. Sep. Alpha I-Beam 167'	100,000 Plans $50	1,750,000

Maps, plans, specifications and proposed forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts and Accounts, Albany, N. Y., and at the office of the District Engineers noted above, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for Plans and Proposal Forms for each contract is indicated above. A refund will be made in full to bidders for return of one set, in good condition, within 30 days of award, or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

Special attention of bidders is called to "General Information for Bidders" in the proposal, specification, and contract agreement, and to the special provisions applying to projects financed with federal funds. Award of a contract is subject to the "Controlled Materials Plan" of the National Production Authority as well as to regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law, as set forth in "Instructions to Bidders."

When optional types are permitted on contracts with federal funds, bidders must state in the space provided in the proposal the exact designation of the optional type upon which the proposal is predicated.

The right is reserved to reject any or all bids.

B. D. TALLAMY
SUPT. OF PUBLIC WORKS

U. S. Government

The tender of 1854 tons of ferrous scrap that we previously advertised in this publication under circular #14, with bid opening scheduled for December 29, is hereby withdrawn. PANAMA CANAL COMPANY, 24 State Street, New York 4, N. Y.

READ THE OFFICIAL PROPOSAL COLUMN OF ENGINEERING NEWS-RECORD THIS WEEK AND EVERY WEEK

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OFFICIAL PROPOSALS

Bids: January 14, 1953

CITY OF NEW LONDON, CONNECTICUT SEWAGE PUMPING STATIONS, FORCE MAINS, SEWERS AND APPURTENANCES

Sealed bids for the construction of Sewage Pumping Stations, Force Mains, Sewers and Appurtenances for the City of New London, Connecticut, will be received at the office of the City Purchasing Agent, Municipal Building, New London, Connecticut, until 2:30 P.M., Eastern Standard Time, on January 14, 1953, and then at said office publicly opened and read aloud.

The Information for Bidders, form of bid, form of contract, plans, specifications and form of performance bond, may be examined at the office of the City Purchasing Agent, New London, Connecticut, and at the office of Kels & Holroyd, Consulting Engineers, 257 Broadway, Troy, New York. Copies thereof may be obtained at the said offices of the City Purchasing Agent or Kels & Holroyd upon payment of $25.00 for each set. Any bidder upon returning such set promptly and in good condition, will be refunded his payment, and any non-bidder upon so returning such set within 30 days, will be refunded $20.00.

The City of New London, Connecticut reserves the right to waive any informalities in, or to reject any, or all bids.

A certified check made payable to the order of the City of New London, Connecticut, in the amount of five per centum (5%) of the bid must be deposited by each bidder with his bid as a guarantee that in case the contract is awarded to him, that he will, within five (5) days thereafter execute such contract and furnish a satisfactory bond. On failure to do so he shall forfeit the deposit as liquidated damages, and acceptance of the bid will be contingent upon the fulfillment of this requirement by the Bidder.

The successful Bidder will be required to furnish a performance bond satisfactory to the City of New London, Connecticut in the amount of the contract, and having as surety thereon such surety company or companies as are acceptable to the City of New London, Connecticut.

The work will be divided into three sections as follows:

Section I —Force Mains, Gravity Sewers and Appurtenances
Section II —Pumping Stations
Section III—Outfall Sewer

The work may be let as one contract or separate contracts may be let for each of the three sections except that manufacturers of cast iron pipe, cast iron specials, valves and valve boxes may bid directly to the City for furnishing these materials for Sections I and III.

No bidder may withdraw his bid within 40 days after the date set for the opening thereof. Any bid may be withdrawn prior to the above scheduled time for the opening of bids or authorized postponement thereof.

THE CITY OF NEW LONDON, CONNECTICUT
By WILLIAM RUDDY, Purchasing Agent
Dated: November 24, 1952
Kels & Holroyd Consulting Engineers
257 Broadway, Troy, New York

U. S. Government

UNITED STATES DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-3856) will be received at U. S. Courthouse, El Paso, Texas, until 10 a.m., MST, January 8, 1953, for furnishing labor and materials for Picacho Arroyo Control, North Branch Dam, Rio Grande Project, New Mexico-Texas. Location: 5 miles northwest of Las Cruces, New Mexico. Principal items are: Excavation 18,800 cu. yds; dam embankment 155,200 cu. yds; and other work. Completion time 200 days. For particulars, address Bureau of Reclamation, U. S. Courthouse, El Paso, Texas; or Building 53, Denver Federal Center, Denver, Colorado.

MICHAEL W. STRAUS, Commissioner

UNITED STATES DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-3857) will be received by Bureau of Reclamation, Casper, Wyoming, until January 13, 1953, and then publicly opened for furnishing labor and materials and performing all work for construction of the 160-mile, 115-kv, 3-phase, single-circuit, wood-pole, H-frame type, Sinclair-Rock Springs-Westvaco, Wyoming, transmission line. For bidding purposes the line is divided into two sections of 125 miles and 35 miles, respectively. Time allowed for completion will be 400 days. For particulars, address Bureau of Reclamation, Casper, Wyoming; or Building 53, Denver Federal Center, Denver, Colorado.

MICHAEL W. STRAUS, Commissioner

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DISCOUNT OF 10% if full payment is made in advance for four consecutive insertions of undisplayed ads (not including proposals).
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NEW ADVERTISEMENTS Address New York City Office, 330 W. 42nd St., N. Y. 36, for January 1st issue closing December 18th

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MECHANICAL

College Graduates with degree or practical equivalent

Submit letter application giving past work history to:

International Engineering Co., Inc.
74 New Montgomery St.
San Francisco 5, Calif.

DRAFTSMEN

For detailing of Reinforcing Steel, Steel Joists, Windows, etc. Experienced men preferred, but will consider men with limited experience in this or allied fields. Permanent position to qualified applicants. Air-conditioned office. 40-hour week, overtime, hospitalization and group insurance plans, paid vacations. Location Richmond, Virginia.

Reply giving brief resume of experience, education, availability and salary expected.

P-6312, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

ESTIMATOR

CONSTRUCTION

Experienced estimating and take off. Background of industrial construction. Write in confidence stating education, experience, and salary. New York Office.

P-6303, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

are you a

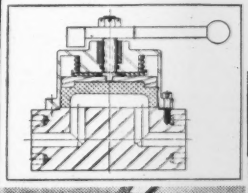
Mechanical DRAFTSMAN?

if so, you'll enjoy working with . . .

GENERAL ELECTRIC

at HANFORD WORKS

Richland, Wash., Atomic Energy Plant



- Top Salaries
- Challenging, Steady Work
- Good Working Conditions and Drafting Equipment
- Liberal Benefit Plans

You'll also enjoy Richland's sunny, dry climate . . . the superb scenery of the Pacific Northwest. And your work . . . steady, interesting and challenging . . . will be in the new field of Atomic Energy.

Priority housing is yours, also. Moderate rentals, variety of homes to choose from in Richland, 24,000 population. Dormitories for single people.

General Electric Company's benefit plans . . . health and life insurance, stock bonus plan, paid vacations and holidays, retirement plan . . . all add up to Good Employment.

WRITE TODAY for additional information and application.

GENERAL ELECTRIC

Richland, Washington

The Tennessee Valley Authority wants Civil, Structural, and Office Engineers and Estimators. The work is design and construction of large steam electric and hydroelectric projects and transmission systems. Salaries start at $3700-$4450 and $5325 for 40-hour week. All jobs carry automatic within-grade increases for satisfactory service, liberal vacation leave, sick leave, and retirement benefits. Design and estimating jobs are in Knoxville and Chattanooga, Tennessee. Field and office engineering jobs are at construction sites in the Tennessee Valley area and at Paducah, Kentucky. Write the

TENNESSEE VALLEY AUTHORITY
Division of Personnel
KNOXVILLE TENNESSEE

SALES ENGINEER

We are seeking a top-flight man, under 40, who is anxious to assume real responsibility with a leading manufacturer of heavy earth-moving equipment. He will probably be a college graduate in civil or mechanical engineering, who has had five years of sales or field experience around earth-moving equipment. He wants to tackle the big jobs; road-building, mining, dams, and air fields. He likes to contact top construction and mining men in the field. He will travel on a good salary with expenses plus a bonus arrangement to reward his initiative.

If you are this man, please send a complete description of your qualifications to

P-6308, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

DESIGNERS

Architectural - Structural

With experience on design for commercial and industrial buildings, including chemical plants, power plants and laboratories.

Structural Designers must have experience in structural steel and reinforced concrete. Must be capable of checking drawings.

Openings in Cleveland offer lengthy employment with good salary for those qualifying.

Send complete resume stating experience, education, salary requirement and available date.

P-6309 Engineering News-Record
520 N. Michigan Ave.
Chicago 11, Ill.

WANTED

An Alert Mechanical Engineer with Some Knowledge of Electrical Engineering . . . Must Be a Good Calculator . . .

PHILIPS & DAVIES, INC.
KENTON, OHIO

Wanted—Earthmoving Sales Representative

Wooldridge Manufacturing Co., Sunnyvale, Calif., has responsible position open for qualified experienced sales representative. Knowledge and experience with earthmoving equipment essential. Civil engineer graduate preferred. Send complete qualifications to:

Mr. J. D. Gusman
Manager, Sales Development
WOOLDRIDGE MANUFACTURING CO.
Sunnyvale, California

APPRAISAL MANAGER

For department of Company specializing in appraisals of industrial properties. Must have extensive industrial experience both selling appraisals and preparing appraisal reports. Man desired under fifty. Give full experience in letter to

P-6311, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

PROJECT MANAGER

To take charge of large South American engineering and construction project of long duration.

Must have past record of accomplishment as capable organizer and time conscious driver of major projects involving process and chemical industries, housing, water, sewer, electric, roads and railroads, terminals, wharves, etc.

Spanish language capabilities desirable. Send well prepared and all embracive particulars of past experience, education, personal, and past earnings. Applications from other supporting personnel with Latin American experience solicited.

P-6222, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

WANTED

An energetic engineer with sales personality.

25 to 35 years of age, for sales work with company operating on nationwide basis furnishing Concrete Form Engineering and Rental Service. General construction experience and some Engineering college training desirable. Give full details in first letter to

R. P. Wilkinson, Economy Forms Corporation
4301 N.E. 14th St., Des Moines 13, Iowa.

COST ENGINEER

Unusual opportunity for Cost Engineer on major plant project in California. Requires cost and construction experience, but principal qualifications are intelligence, interest and ambition. Functions include unit cost analysis, special cost reports and cost forecasts. A responsible position and one offering opportunity for advancement in an expanding, progressive organization.

Write giving complete qualifications, references and salary requirements. Your reply will be held confidential.

BECHTEL CORPORATION
220 Bush Street
San Francisco, California

MECHANICAL ENGINEER— STRUCTURAL ENGINEER AND ARCHITECT

For approval of public building drawings with experience in the design of public schools. Good pay for qualified men with training and experience. Opportunity for advancement. Furnish full information regarding education, training and experience, age, references and salary required. Replies strictly confidential.

DEPARTMENT OF PUBLIC WORKS
Baltimore County
Towson 4, Maryland

FUEL SPECIALIST

Established firm of consulting engineers has opening on its consulting staff for experienced technically qualified Fuel Specialist conversant with solid, liquid and gaseous fuels used in large steam electric generating plants; sources, characteristics, etc. Competent to make studies of comparative economics; determine market possibilities; determine trends as to costs. Also assist selection plant sites as sources and economic worth of fuels relate to selection. Utility background desirable. Give full particulars, education, experience and personal information.

P-6280, Engineering News-Record
330 West 42nd St., New York 36, N. Y.

REPLIES (Box No.): Address to office nearest you
NEW YORK: 330 W. 42nd St. (36)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

POSITIONS VACANT

DESIGN ENGINEERS—Men having experience in design and preparation of drawings and reports for highway, sanitary sewer and municipal-type storm drainage systems including inlets, collection systems, interceptors and culverts. Good pay for qualified men with training and experience. Opportunity for advancement. Furnish full information regarding education, training and experience, age, references and salary required. Replies strictly confidential. P-6036, Engineering News-Record.

DESIGNERS-DRAFTSMEN, for highways and bridges. Excellent opportunities. Be prepared to submit complete experience record. Ammann & Whitney, Consulting Engineers, 76 Ninth Ave., New York 11, N. Y.

ENGINEERS EXPERIENCED in water and sewage works projects or related fields. Opportunity for permanent connection with long established consulting firm. Please state full qualifications, experience and salary requirements. Location Ohio. P-6220, Engineering News-Record.

EXPERIENCED MAN for structural steel detailing, checking, or estimating. Send name, address, and list of qualifications to: Fabricated Steel Products of Indiana, Inc., 2025 South Main St., South Bend 14, Indiana.

GENERAL SUPERINTENDENT. Heavy construction. Please write qualifications, experience and salary desired. Your answer will be treated with confidence. P-6275, Engineering News-Record, 330 W. 42nd St., N. Y. C.

GENERAL SUPERINTENDENT, capable of taking complete charge of operations for large northwest contractor. Must be an aggressive, experienced organizer—cost conscious. Excellent opportunity, salary open to right man—profit sharing. Send complete resume of experience, training, personal data, salary expected, etc., to P-6332, Engineering News-Record.

LARGE, WELL established Contractor in the Middle West, has a permanent position open for a building Construction Supt. to construct: Schools, Churches, Hospitals, & Office Bldgs. We do not want an office executive for this job, but rather a practical man who has actually built things and has the know how acquired from experience. State work history, age, and approximate salary requirements. P-6326, Engineering News-Record.

QUANTITY SURVEY Man with thorough knowlerge of building construction details to act as assistant to chief. Must have substantial experience with General Contractors, public work preferred. Write full details. Do not bother to answer unless you have proper background. Will pay $10,000 per annum to right man. Location Washington, D. C. P-6116, Engineering News-Record.

SURVEY PARTY Chiefs and Instrumentmen—Men having experience in Topographic, Property and Utility layouts. Good pay for qualified men with training and experience. Opportunity for advancement. Furnish full information regarding education, training and experience, age, references and salary required. Replies strictly confidential. Dept. of Public Works, Baltimore County, Towson 4, Maryland.

YOUNG CIVIL ENGINEER, interested in concrete. Send complete information to Scientific Concrete Service Corporation, 724 Salem Avenue, Elizabeth 3, New Jersey.

ESTIMATOR
PIPING

Experienced estimating and take off Background of power plants. Process piping essential. Write in confidence stating education, experience and salary. New York Office.

P-6305, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

POSITIONS WANTED

CIVIL ENGINEER, 18 years experience in heavy construction. Dams, powerhouses, buildings and other concrete structures. Preparations of estimates, bids, schedules, cost reports, etc., and active supervision of engineering and/or construction of project. Prefer position as chief engineer or project manager with prime contractor. Foreign or domestic. Complete resume upon request. PW-6068, Engineering News-Record.

CIVIL ENGINEER, graduate, 58, experienced on building construction as Construction Superintendent, construction engineer, architectural checker, and structural steel and concrete checker. Now employed. Desires connection with sound, progressive firm. PW-6272, Engineering News-Record.

CONSTR. SUPT., Asst. Supt., Estimator—Background in power, chemical and metals plants, housing, etc. Age 38. Prefer Southwest Location. PW-6317, Engineering News-Record.

CONSTRUCTION SUPERINTENDENT, Concrete Pipe Manufacturer, considerable experience. PW-6290, Engineering News-Record.

CONSTRUCTION SUPT. for large Building Construction Company desires position as General Supt. for smaller firm. PW-6316, Engineering News-Record.

ENGINEER-CONSTRUCTION: Wide experience industrial and public works, U. S. and abroad. Negotiations, sales, liason, planning, coordination, management. Available to limited reputable clientele on retainer basis. Address "Engineer" P.O. Box 2822, Washington 13, D. C.

ENGINEER, M.E.; P.E. (N.Y.), desires to fit his solid experience in design and know-how in construction of oil, power and process piping into position of responsibility with California organization. PW-6316, Engineering News-Record.

EXECUTIVE ENGINEER, long experience, management large company, heavy construction docks, foundations, tunnels, difficult subaqueous structures, etc. PW-6428, Engineering News-Record.

FIELD ENGINEER, Age 29, M.S. Construction administration. Domestic & Overseas Experience. CAA Com. Pilot's license. Seeks foreign employment. PW-6307, Engineering News-Record.

SANITARY ENGINEER, B.E. (Civ.), M.S. (San.), 4 years experience, design and operation, water treatment and distribution, sewerage and sewage treatment. PW-6070, Engineering News-Record.

WORK WANTED

FIELD WORK and plans on; Electrical transmission, Highway, water and sewer systems. Wilson Engineering Co., Glasgow, Ky.

IF THERE IS

Anything you want

that other readers of this paper can supply

OR—

Something you don't want

that other readers can use, advertise it in the

Searchlight Section

STRUCTURAL ENGINEERING
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OUR COURSES of instruction by mail HAVE HELPED THOUSANDS to better positions and to pass State Board Examinations. *Forty-first year.* Write today.

WILSON *Engineering Corp.*
College House Offices - HARVARD SQUARE, CAMBRIDGE, MASS.

ATTENTION CONTRACTORS:
List your equipment with us for quick sales. We also store your equipment in our yard for a small fee until sold if you desire.
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All instruction by mail. Send today for sample lesson and complete details

GEO. E. DEATHERAGE & SON
5 E. Preston St. Baltimore 2, Maryland

Notice to Advertisers

Because of the New Year Holiday, January 1st, the "Searchlight" pages of the

January 1st Issue of

ENGINEERING NEWS-RECORD

Close for press earlier than the usual weekly closing time.

The cooperation of advertisers is solicited in forwarding new copy, or changes of copy, to reach us accordingly.

FINAL CLOSING TIME
Display and Undisplayed Ads
Thursday, December 18th

PROPOSALS
Tuesday, December 23rd

FOR SALE
New Wire Rope Blocks

12" Snatch Blocks with Hooks	$13.50
14" Snatch Blocks with Hooks	18.50
16" Safety Snatch Blocks with Shackles	20.00
14" Double Blocks with Shackles	13.00
18" Single 20 Ton with S. Shackle	25.00
18" 3-Sheave 30 Ton with Shackle	50.00
18" 4-Sheave 30 Ton with Shackle	75.00
#32 Drop Forge Hooks, New	2.00

ABERTHAW COMPANY
133 Southampton St. Boston 18, Mass.

FOR SALE

Model 4500 Manitowoc Draglines, caterpillar-mounted, with 140' booms, buckets, Caterpillar engines, 5 cu. yd. 100-ton capacity, one and two years old.

Model 3500 Manitowoc Speedcrane, Liftcrane, clamshell, dragline combination, 2½ cu. yd. 60-ton capacity, new October, 1950.

Model 2000 Manitowoc Dragline, 1¼ cu. yd. capacity.

Model 803 Koehring Liftcrane, Clamshell, Dragline combination, 2 cu. yd. 50-ton capacity.

All located in Florida. Reply to

FS-5844, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

WANTED

DERRICK WANTED
Steel guy derrick, capacity 10 to 20 tons, rigged for clamshell work, 90 to 100-ft. boom. State price and location.

W-5900, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

55,000 BARREL TANKS
Prompt Delivery

5—55,000 Bbl. Steel Cone Roof Tanks, Riveted Construction, dia. 114'6" x 30' High. Used good condition, suitable re-erection. Located Kings Mill, Texas. Specs., price, available on request.

MID-STATES PIPE & SUPPLY CO.
Box 2534 Tulsa, Okla. Ph. 2-9128

WANTED
TRUCK CRANE
LATE MODEL 25 TON CAPACITY
MUST BE IN A-1 CONDITION
M. H. HUBBARD
205 Peat Street Syracuse, N. Y.
Telephone 74-7723

FOR SALE
LORAINE HEAVY DUTY TRUCK CRANE
Model 414—105' Boom & Jib
Excellent Condition
HEYDT-MUGLER CO., INC.
Longfellow & Viele Aves. N. Y. C. 59

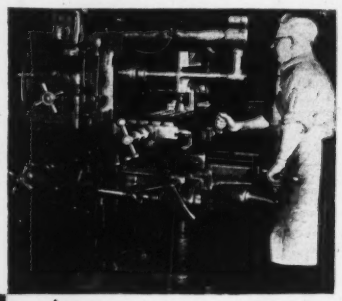
WANTED
1—PORTABLE CRUSHING AND SCREENING PLANT
For use in Limestone in Penna.

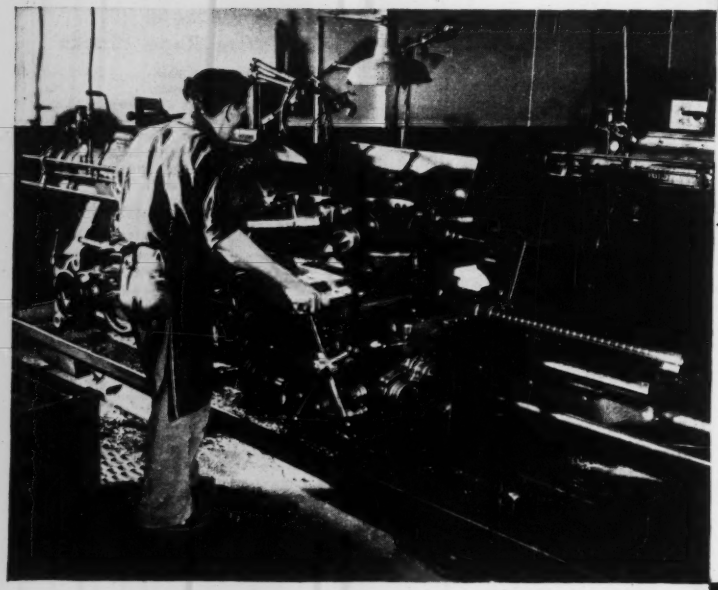
W-6259, Engineering News Record
330 W. 42 St., New York 36, N. Y.

WALL FORMS
6,000 sq. ft. of Type "A" Atlas Speed Wall Forms, like new, seldom used. Will sacrifice at a great loss. Your chance for a real saving.

GEO. W. LATHROP & SONS, Inc.
Box 772, Main P. O. Toledo, Ohio

He works with Doctor-like thoroughness

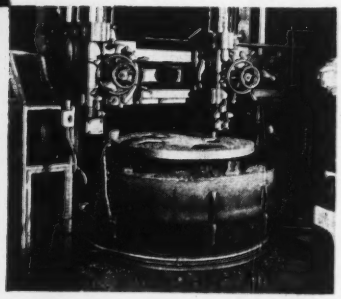




Milling operation on #3 Brown Sharpe milling machine.
Milling slot in Hoist control lever for American locomotive crane now being rebuilt for Babcock-Wilcox Tube Co., Barberton, Ohio.

Turret Lathe operation on #5A Gisholt turret lathe.
Turning—boring—facing and cutting to length. Bronze bushings for Lorain 820 turntable rollers. With parts in short supply as they are today, the ability to help ourselves is money in our customers' pockets.

Boring mill operation on 60 in. Niles vertical boring mill.
Turning and facing cylinder end casting for Robot laundry washer.



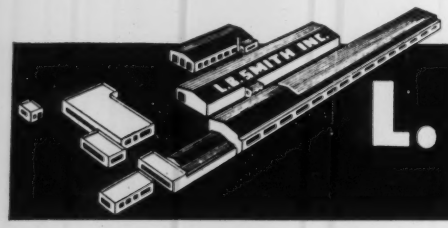
Rebuilding—to make like new—
CONSTRUCTION EQUIPMENT

AN INVITATION

To Use the World's Largest Equipment Rebuilding Facilities

Where rebuilding is a business—with over 25 years of experience on all types of construction equipment—where highly trained mechanics with precision tools—can build back into your equipment many years of additional and efficient usefulness—using the same thoroughness employed in rebuilding our own used equipment.

You are invited to investigate our complete facilities.



L. B. SMITH INC.

CAMP HILL, SUBURB OF HARRISBURG, PA.

L. B. SMITH INC.

New and Used Equipment News

Prepared Monthly by Ed Woolford at Camp Hill, Pa.

VOL. 1 NO. 9

AIR COMPRESSORS

Gardner-Denver 500 cu. ft. diesel, new condition.
Gardner-Denver 500 cu. ft. diesel, good operating condition.
Schramm 105 cubic foot gas powered compressor on 4 steel wheels.
Worthington two-stage, water-cooled, vertical 250#, 60 CFM, new condiiton.
Paving breakers, jackhammers, wagon drills, tie tampers.

QUARRY EQUIPMENT & BINS

2540 Cedarapids AAAA primary unit on rubber, diesel power. Rebuilt.
2036 Cedarapids AAA primary unit on rubber, diesel power. Rebuilt.
1036/2418 Cedarapids Jr. Tandem unit on rubber.
Cedarapids Rock-It plant w/2025 jaw, 3033 hammermill. New.
1236 Cedarapids Model 6C plant. New.
4033 Cedarapids Model 6C plant. New.
2020 Cedarapids double impeller. New condition.
4024 Cedarapids roll. Rebuilt.
3018 Cedarapids roll. Rebuilt.
1236 Cedarapids twin jaw crusher. New.
10x7 Allis Chalmers Blake type jaw crusher. Rebuilt.
#1 Cedarapids Kubit impact breaker. New condition.
B-3 Jeffrey swing hammer pulverier. Rebuilt.
4' x 6' Kennedy Van Saun single deck screen.
3' x 6' Kennedy Van Saun triple deck screen.
60" dia. x 14' long Traylor revolving screen. Rebuilt.
36" Wemco single pitch sand screw. New condition.
15 cu. yd. Cedarapids sand drag. New.
16" x 90' bucket elevator.
60-ton, 2-compartment, 8' x 18' storage bin w/clam gates.
100-ton, 2 compartment, 13'x23' storage bin.
Special bins to your specifications.
Conveyors—18"—24"—30"—36". Also belt.

TRUCKS—TRAILERS

27FD Euclid rear dumps.
28FD Euclid rear dumps.
1½-ton Ford with any body.
2000-gallon tanks on semi-trailer mounting.
New and rebuilt dump bodies.

GENERATORS & LIGHT PLANTS

1½ KW to 125 KW, alternating and direct current gasoline and diesel powered.

SHOVELS—CRANES

Lorain 75, 1¼-yd. diesel.
Lorain 40 truck crane on Mack 3-axle truck.
Lorain TL, ¾-yd diesel. Any front.
Unit 514, ½-yd. gasoline crawler shovel. Good condition.
Osgood 200, ½-yd. gas hoe.

SHOVEL & CRANE ATTACHMENTS

Lorain L-41 Chain Crowd Shovel Attachment. Rebuilt.
Lorain 40 Hi-Lift shovel attachment.
P&H 203 shovel attachment.
Chain crowd Lorain 30A shovel attachment.
Bucyrus-Erie 1½-yd. rock bucket.
McCaffrey Model 648 for 1¼ to 2-yd. crane.
McCaffrey Model 636 for ¾-yd. to 1-yd. crane.

BACKHOE BUCKETS & ATTACHMENTS

Lorain 30 hoe attachment complete.
¾-yd. Lorain, 40, LBS #6105. 44" cutting width.
¾-yd. Amsco 40" cutting width, LBS #8101.

CLAM—DRAG—SCRAPER BUCKETS

LIFTING MAGNETS

1—45" Ohio lifting magnet, rebuilt.

SHOVEL DIPPERS

Lorain 41, ¾-yd. LBS #8600, rebuilt.
New Lima 1-yd. Amsco, LBS #2295.
Bucyrus-Erie 1¼-yd. gas air, LBS #3782, fair.
Lorain 75B, 1½-yd. manganese bucket, LBS #8538.
Lorain 75B, 1¼-yd. extended lip, 1¾-yd. LBS #2260.
Pettibone-Mulliken 2-yd. Lorain 82 or 820, manganese, LBS #5361.
Pettibone-Mulliken 2-yd. for 3500 Manitowoc LBS #5763.
Esco 2½-yd. cast weld dipper with bail & teeth.

CONCRETE EQUIPMENT

Blaw-Knox gas-electric finisher, 10½'-12½', rebuilt.
Koehring 10'-12' finishers, rebuilt.
Cleveland formgrader, new 1944, rebuilt.
Corr formgrader, new 1944, rebuilt.

TRACTORS

TD-24 International with Bucyrus-Erie angle-blade.
TD9 International diesel with 1 yd. Loadover.
Model CR Tournapull w/16-yd. Model E16 Tournarocker, rebuilt.

WELL DRILLS & TOOLS

Sanderson-Cyclone #42 well drill, new.
Sanderson-Cyclone #44 well drill, new.
Bits—Stems—Bailers—Sockets—Etc.

Barber-Greene 44C Trenching Machine 18" to 24" cutting width, 7' depth.

PUMPS

New Layne Bowler type 18 deep well pump with right angle gear drive. 3000 GPM at 120' TDH.
Used and rebuilt pumps, all sizes, gasoline, electric or diesel.

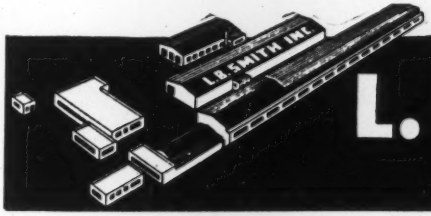
GRADERS

Austin Western 77 tandem drive, scarifier, 12' blade, gas power, hydraulic controls.

GASOLINE AND DIESEL ENGINES

Caterpillar D-13000, rebuilt.
Murphy ME-6, & ME-46, rebuilt.

***Phone* HARRISBURG, PA. 7-3431**



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DIESEL POWER

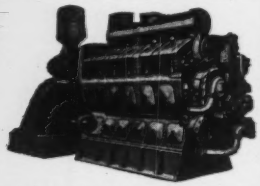
FOR

IMMEDIATE SHIPMENT

UNIT CAPACITIES—10 TO 1875 KVA

A.C.—50 AND 60 CYCLES

VARIOUS VOLTAGES



A PARTIAL LISTING OF OUR INVENTORY

KW	Make	Model	HP	RPM	KW	Make	Model	HP	RPM
1500	Fairbanks Morse	32E16	2000	300	320	Buckeye	80	480	600
1136	Fairbanks Morse	38D	1800	720	320	Enterprise	DSG-6	560	450
1100	General Motors	16-278A	1800	720	300	General Motors	8-268A	450	1200
1000	General Motors	16-567B	1440	720	250	Fairbanks Morse	32-E	375	360
750	General Motors	12-567	1080	720	200	General Motors	6-268A	330	900
500	Baldwin	VO-8	750	514	100	Worthington	BB-5	150	600
500	General Motors	8-278A	750	720	100	General Motors	3-268A	150	1200
500	General Motors	8-567	720	720	60	General Motors	6-71	90	1200
400	Ingersoll-Rand	[illegible]	600	720	30	Internat'l Harvester	UD-14	45	1200
350	Baldwin	VO-6	510	450					

D.C. UNITS ALSO AVAILABLE

A. G. SCHOONMAKER COMPANY, INC.

ENGINE DIVISION, 50 CHURCH ST., NEW YORK 7, N. Y.

FOR SALE

1—Northwest 25 truck crane, 110' boom, 15' jib, new 1950

1—International TD18 tractor, with hydraulic angledozer, rebuilt

1—International TD9 tractor, with hydraulic bulldozer

1—Lorain 40 combination shovel, dragline, backhoe, rebuilt

1—Northwest 25 combination shovel, dragline, backhoe, late series

1—Cat. D8 tractor with cable angledozer, late series, excellent condition

1—Buda model HBJ earth drill, excellent condition

1—Bucyrus Erie model 38-B shovel, dragline combination

1—Northwest 6 shovel, backhoe, dragline combination

AL. J. GOODMAN

Day Phone Asheville, N. C. 3-6456
Night Phone Asheville, N. C. 5668
P. O. Box 263 Asheville, N. C.

SHOVELS—CRANES—DRAGLINES
Buc-Erie 170-B Electric Shovel. New 1949.
Buc-Erie 120-B Electric Shovel. 5 yds.
Page 625-S Diesel Dragline 150 ft. boom.
Page 618-S Diesel Dragline 110 ft. boom.
Northwest 80-D Diesel Shovel, rebuilt, 2½ yd.
Manitowac Mod 3500 Diesel Shovel.
Buc. Erie 54B Dragline, 100 ft. boom, 3 yd.
Buc. Erie 51B Shovel, 2 yd. Near new cond.
Koehring 304 Shovel ¾ yd. Rebuilt. Diesel.
P&H 855-B 1½ yd Shovel-Crane-Drag. Diesel.
P&H 255-A 20 ton Truck crane 80 ft. boom.
Lorain Mod. Mc-414 Moto-Crane 70 ft. Boom.
Lorain Mod TL-20 Moto-Crane, 60 ft. Boom.
TRAXCAVATORS—PAYLOADERS
Cat. D-4 Tractor with Athey Mobile Loader.
Cat. D7 Traxcavator. Rebuilt.
Cat. D4 Traxcavator. Rebuilt.
Hough Payloaders Models HLA, HFH, HE, HA.
CONCRETE PLANTS—BINS & SILOS
B-K P-4120, 3 compt., agg., one for cement.
Large plant 212 yds., 6 compt., agg. and cement elevators, 56-S Mixer. Excellent.
Large plant 400 yds., 5 compt. with 2 yd. Koehring Mixers. Write for details.
Cement bin 400 bbls. with batcher. NEW.
Agg. bin, 100 tons 3 cpts. 2 yd. weighbatcher, NEW.
ASPHALT PLANTS
Barber Greene Model 842 Utility Plant
McCarter Iron Works Complete 3000# pug mill.
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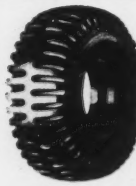

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16"	4	1/8"	1/32"	28 Oz.
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20"	4	1/8"	1/32"	28 Oz.
20"	5	1/8"	1/32"	28 Oz.
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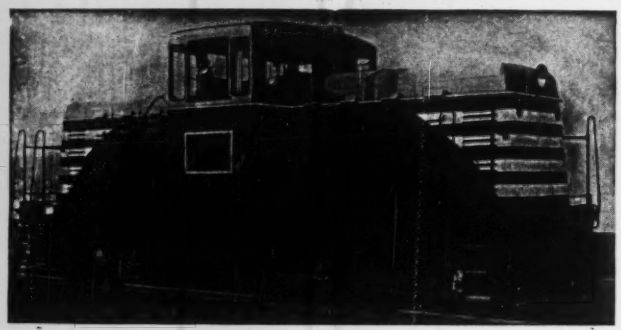

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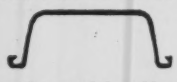

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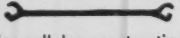

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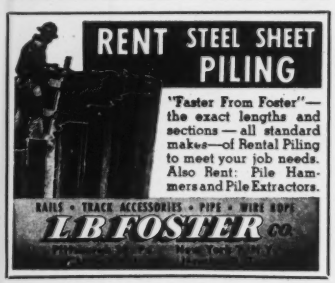
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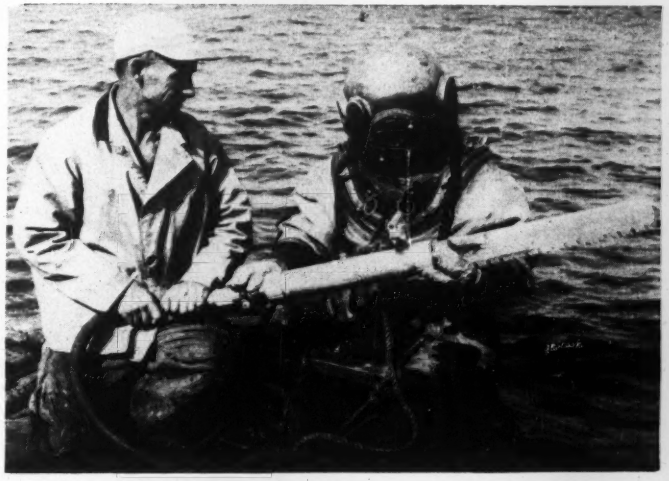
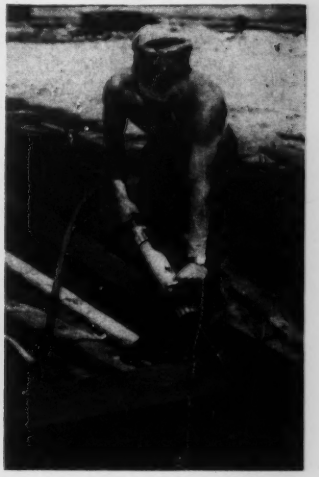




Air-powered saw cuts anywhere—even under water

J. M. Connolly
Associate Editor

ONE OF THE most versatile tools in the construction industry today is the Wright Power Saw. It can be used anywhere—even under water—and will operate in any position. It's air-driven and has two interlocked reciprocating blades with opposed strokes. These operate at 1,500 strokes per minute and duplicate the reciprocating motion of a two-man saw with amazing cutting speed. Air is fed into the saw through a ¾-in. hose of unlimited length and it will operate with less than 60 fpm of air at 70 to 100 psi.

The entire unit weights only 14½ lb and over-all length is 46½ in. The 18-in. blades travel through 21 in. while cutting and leave a kerf of only ⅞ in. Early models of the Wright Power Saw could crosscut a standard Douglas fir 12x12 timber in 1 min, 30 sec. Current improved models do the same job in 45 to 55 seconds. The tool can be used also, after a little practice and experience, to miter, rip, bevel, etc.

Left-hand operators can use the saw as well as right-handed men. A safety throttle must be turned and held against spring compression to operate the saw, which stops automatically the instant the throttle is released. The handle is fully adjustable for cutting in any position. Any 60-cfm compressor will operate one saw, and a 105-cfm compressor will operate two.

No such development and current level of acceptance is accomplished overnight. It represents the growth and development of an idea by John Wright, its inventor and president of the company, and is a tribute to America's system of free enterprise.

• **How it started**—Several years ago, while a financial adviser to a lumber concern in Florida, John Wright was surprised to find that existing power saws had not been accepted widely by pulpwood producers and loggers, and that the old-fashioned method was still predominant—the use of hand labor and two-man saws. He thought that he could duplicate the reciprocating action of the two-man blade in a machine that would be air-powered and would operate at more than 1,000 strokes per minute. Lumbermen told him that the idea had been tried and that such machine always "shook the daylights" out of an operator because of their reciprocating action.

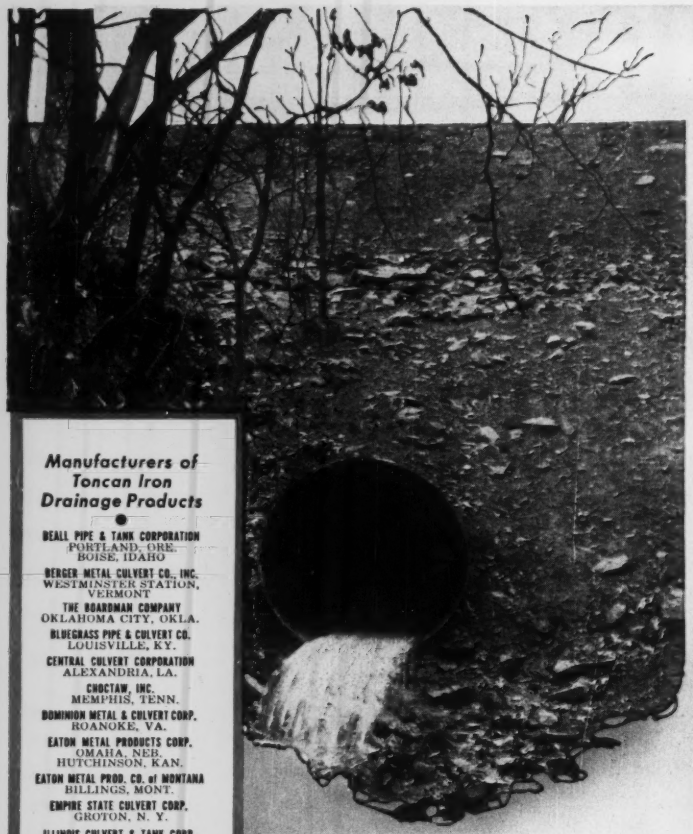
Wright came up with a simple solution: two parallel, interlocked blades with opposed strokes, the energy and momentum of each one balancing the same in the other, leaving the operator unaffected. It was a long, hard road from this idea to the first working model, however.

• **Help from retired designer**—Wright went to Charles H. Barnes, the nationally known firearms designer who had just retired from active work with the Remington Arms Company, and persuaded him to devote his full-time creative engineering efforts to the development of the new saw. After three years of experimenting, testing and research the first working model was ready for a contractor to use—in 1949—and then passed a 6-month on-the-job test with enthusiastic reports by the contractor—and no breakdowns. (Incidentally the original model is still in use today, having had only slight adjustments and the incorporation of several improvements since then.)

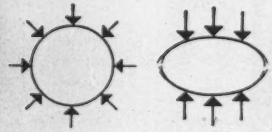
• **The underwater job**—Shortly afterward, Joseph Hepworth, job superintendent for Merritt-Chapman & Scott Corp., contacted Wright and said that he wanted a saw to cut off submerged timber pile tops. Wright didn't have underwater work in mind when he designed the saw, but there was no apparent reason why the machine shouldn't work submerged. Gasoline- and electric-powered saws were out of the question under water.

• **Two-hour job in one minute**—The job in question was installation of an outfall sewer at nearby Fairfield, Conn., where two rows of creosoted piles had been driven on 12-ft centers for a distance of 480 ft to provide support for the outfall line. They varied in diameter from 14 to 18 inches. Up to that time the job of cutting such piles

(Continued on page 123)



Flexes with the Fill!



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under water called for two divers with a two-man saw and two hours' time for each pile. The Wright Power Saw needed only one diver, and cutting time on each pile averaged slightly more than one minute.

• **Another test on causeway**—Another tough job for the new timber-cutting saw occurred when Union Building & Construction Co. of Passaic, N. J., used them in cutting off tops of some 800 exposed piles. This time the job was a combination bridge and dam to first cross over water and later control its level at a constant height for possible future installation of a memorial park adjoining the New Jersey Turnpike near Ridgefield.

Some 1,200 piles in all were driven, but time was at a premium in trimming tops on the last 800. At the insistence of the contractor, the Wright Co. not only provided four new air-powered saws, but had four more available as standbys. These weren't needed since four workmen, each armed with a saw, finished the job of cutting all 800 piles in a day and a half.

There have been other important users in the contracting field. North Atlantic Constructors bought eleven saws to take to their Arctic air base job at Thule, Greenland, (ENR Oct. 2, p. 21). Six months later they sent an order for six more.

• **Navy OK's saws**—The Navy has put the saws through exhaustive tests and has approved them. According to the official Navy test program report, the saws "were used for heavy timber construction, logging operations, dock and underwater work" and were found "highly successful in all phases." They are now catalogued as an item of issue for the Navy "Seabees," and the U. S. Marine Corps, and are under test by the Army Field Forces because of "light-weight, one-man operation, speed, and variety of cutting positions."

• **Not always easy going**—The Wright Company has had its downs as well as its ups on the road to success. One incident was almost tragic!

The instant response to the tool and immediate demands for it put the company on a 3-shift basis where quality control was difficult to maintain. An error was repeatedly made in overthreading a small pinion shaft for each saw by only $\frac{1}{8}$ in. This set-up delayed chain reaction, however, with the pinion shaft tearing into a bushing, the bushing wearing down and the pinion vibrating so that it caused fatigue breaks in the main piston and/or shaft. The sequence and seriousness of breakdowns were dependent upon the amount of time each saw had been used since delivery.

Mr. Wright discovered the error just

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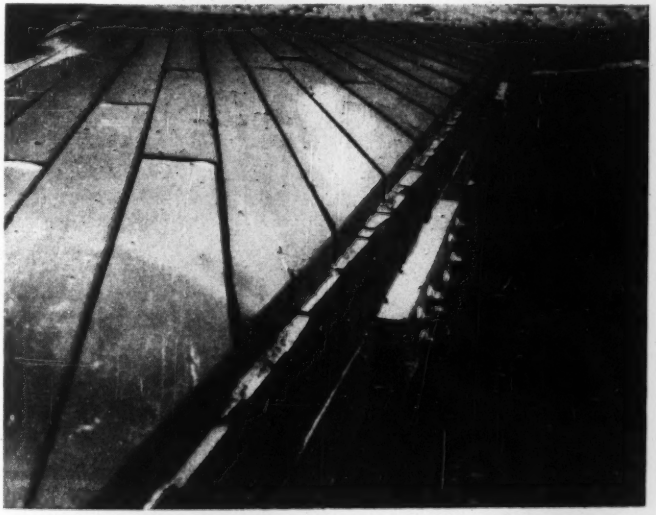

ANOTHER JOB where the Wright saw saved a contractor time and money was on this heavy timber cover over a drainage creek adjoining a runway on newly-opened Newark, N. J., airport. Union Building & Construction Co. used one on this job too, to cut all piles, caps, stringers and decking. Note long, straight diagonal cuts.

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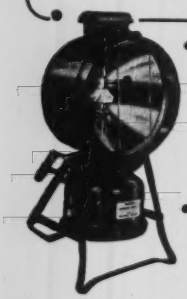

This Model F. L. 6 Floodlight is shown complete with short stand—Weighs 27 lbs. Overall height 26 inches. Also available on 5 to 8 ft. tripod with turntable top—$85.

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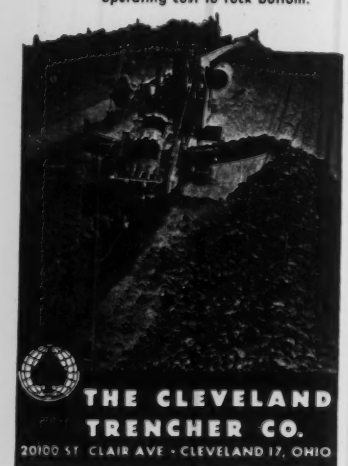

THE CLEVELAND TRENCHER CO.

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two days before the first complaint came in, and a quick check showed that hundreds of saws had been OK'd after passing tests, and were now in the hands of users and distributors.

• **Repaired and replaced free**—Wright immediately contacted all his distributors, told them what had happened, and asked them to replace all faulty parts on saws then in the hands of customers. At the same time he recalled every saw then on the dealers' shelves and replaced each one with a new, trouble-free model. Company representatives went out meanwhile and traveled more than 29,000 miles finding saws in use, explaining the error and replacing parts. Almost all of the faulty tools had been delivered west of the Mississippi, and by the time re-orders came in from the East the situation had been corrected.

The company has been improving the saw constantly and incorporating suggestions from users. During this course of development, eighteen refinements have been made and all have been sent to dealers at no additional charge. Whenever a saw is serviced by the factory, it is automatically "remanufactured" and returned to the owner as a new saw in appearance as well as construction.

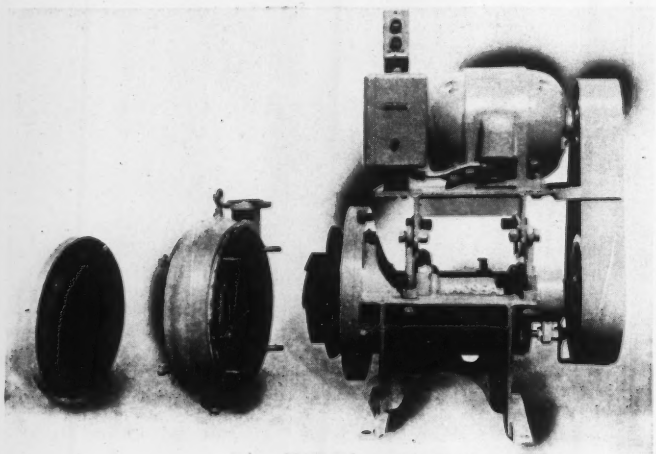
Wright Air Saws are fast becoming standard equipment on heavy construction jobs, in mines, shipyards, and railroads throughout the world—the company's sales department has set up stocking distributors in Europe, South America, and the Far East, as well as throughout the United States and Canada. The Wright Power Saw is only the first of a line of new products for the logging and construction fields. For two years now the company has been experimenting and improving gasoline- and electric-powered models which will be announced in the near future and will be covered fully in these columns at that time. WRIGHT POWER SAW AND TOOL CORP., 292 LONGBROOK AVENUE, STRATFORD, CONN.

Rubber lining on solids-handling pump

Vacseal is the name applied to a new series of solids- and acid-handling pumps manufactured in rubber-lined and all metal types in sizes 2 in., 3 in., 4 in., 6 in., and 8 in. with capacity ranges up to 3,000 gpm.

These pumps operate on the patented "vacuum-seal" principle which prevents fluids or the entrained solids from being forced into the gland. The impeller is a disk with pumping vanes on one side and smaller auxiliary vanes of a greater diameter on the reverse side next to the gland. These auxiliary vanes produce a vacuum on the shaft seal and prevent solids from cutting the shaft or packing, at the same time precluding sealing water in order to protect the gland and packing.

All of the features which enable the pump to produce suction are said to have been retained and suction lifts of from 10 to 12 ft are possible. The pumps are particularly applicable for service in the construction and cement industries when handling sand and gravel and cement.



The rubber lining is vulcanized to cast iron parts with a thermosetting cement. This type of Vacseal can be made acid-proof by merely changing the gland bushing and installing a shaft sleeve.

All metal pumps are constructed of Ferloy iron for handling larger particles and higher heads than the rubber-lined type. Heads up to 150 ft are possible with this type. For special applications lining materials such as neoprene and silicone rubber compounds are available. THE GALIGHER COMPANY, 545 WEST EIGHTH SOUTH, SALT LAKE CITY, UTAH.

New Products briefs . . .

The "Multi-metal" file, **a new file specially designed for the machinist** who must work on a wide variety of metals, has special tooth shapes and spacing so that the same tool will cut aluminum, brass, copper, iron and steel. Sides are double-cut; edges are single-cut. Packed six to a box in lengths of ten, twelve and fourteen inches, they are available from **Henry Disston & Sons, Inc., Philadelphia, Pa.**

Production of special **side panels for use with the Model PW-189 Fageol Heat Machine** to permit operation with warm air ducts is announced by the **Fageol Heat Machine Company, 5725 Mt. Elliott Avenue, Detroit 11, Michigan** (ENR March 13, '52, p. 148). These adapter panels are made of heavy sheet steel with flanged openings for duct attachment and can be installed in a few moments, says the manufacturer.

A **new type caulking cartridge** that can be used with equal effectiveness **in all types of cartridge caulking guns** has been introduced by **Calbar Paint and Varnish Company, 2612-26 North Martha Street, Philadelphia, Pa.** The new combination caulking cartridge consists of a standard calbar hole-in-cap cartridge of Calbar non-hardening, non-staining sealer, plus a snap-in plastic nozzle. With metal nozzle guns, you merely insert the hole-in-cap cartridge and replace the nozzle. For other guns, just snap in the plastic nozzle to the cartridge and insert.

A hermetically sealed **precision toggle switch** has been developed by the Micro division of **Minneapolis-Honeywell Regulator Company, Freeport, Illinois** which is said not to be affected by corrosive atmosphere, dust, dirt, oil or water.

(*Publications* on page 127)

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- Los Angeles Cty. Flood Control, Los Angeles, Calif.
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- U. S. Army Corps of Engineers, Los Angeles District
- Vibro Piling Co., Johannesburg, South Africa

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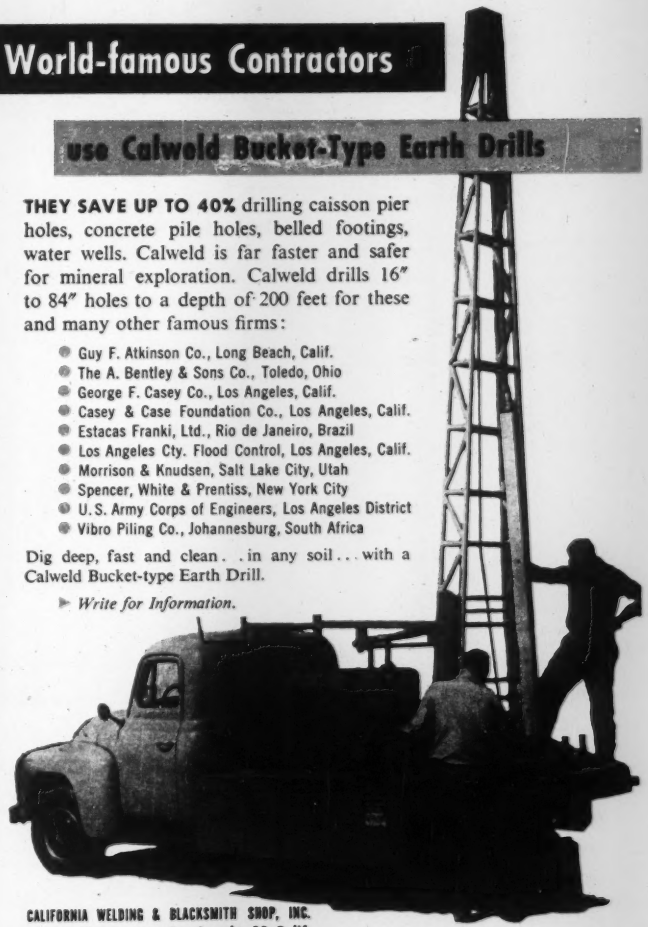

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PUBLICATIONS

"Helping Hands for Your Material Handling"—is the title of a 16-page booklet by the Oliver Corporation. It describes its crawler tractors, wheel tractors and the complete line of matched allied equipment. Crawler tractors described in this booklet include Models A, B, D, FDE, and OC-3. Wheel tractors include Models 66, 77 and 88. THE OLIVER CORPORATION, 19300 EUCLID AVENUE, CLEVELAND 17, OHIO.

Galion Hydraulic Hoists—There are fifteen hydraulic hoists in the complete line of Galion's new series. Each one has its own bulletin covering full specifications for one individual hoist.

Each bulletin contains data on hoist type, weight, stroke, cylinder diameter, mounting height, dump angle and piston rod diameter. Each is profusely illustrated with large close-up hoist photos and application pictures. Hoist pumps are shown in detailed, cut-away form. THE GALION ALLSTEEL BODY COMPANY, GALION, OHIO.

Stone Working Tools—Drills, tools, goggles, portable cranes, chisels, lifting dogs and every other conceivable type of equipment used in any phase of stone work are all described in a 36-page booklet made available by Trow & Holden Company.

Architects, engineers and contractors who are bothered by problems of any kind in stone work and masonry structures would do well to add this booklet to their data files. It is profusely illustrated and shows every kind of tool needed in drilling, trimming, placing of masonry and stone work. TROW & HOLDEN COMPANY, BARRE, VERMONT.

Wire Rope—Twenty-four pages packed with concentrated wire rope data make up the booklet made available by the E. H. Edwards Company. It is condensed from the company's general catalog in order to provide wire rope users with a concise, easy-to-read guide to every important phase of wire rope production, purchasing, maintenance and use.

Detailed drawings, charts and descriptive material based on the company's thirty years in the wire rope business are included in the booklet.

In addition to data about the rope itself, there are chapters on wire rope fittings, sheave diameters, the problem of sheaves in general, and lubrication and storage. E. H. EDWARDS COMPANY, BUTLER ROAD AND INDUSTRIAL WAY, SOUTH SAN FRANCISCO, CAL.

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EDITORIAL

Construction boom-and-bust

A NEW LOOK at the problem of smoothing out the ups and downs of construction activity has been taken by two knowledgeable economists, with conclusions that are as sensible as they are fresh. The book in which they have reported their studies—Stabilizing Construction (McGraw-Hill)—is therefore significant reading for everyone who makes his living or any part of it from the complex maze of activity that is known as the construction industry. Moreover, the usefulness of the book is not confined to its conclusions because it also contains a masterful analysis of just what the construction industry is, how it got that way, and why its set-up is pretty logical even though complex and confusing.

The authors, Miles L. Colean and Robinson Newcomb, who carried out their study as a part of the research program of the Committee for Economic Development, take no stock in the theory that the whole economy can be stabilized by construction. It is enough of a contribution, they hold—and all that can be expected—if the industry itself can counter in some measure the violent swings that have plagued it periodically.

WHAT THEN can the industry do to stabilize itself? What, also should it refrain from doing in making the attempt?

The authors state their conclusions thus: "As a broad principle, it is considered that, in the absence of major dislocations such as those occurring during and after a war, the less interference that is offered to the operation of normal market forces the better will be the chances of long-run stability. Direct controls on the type and volume of private building should not be considered except in the direst emergency. Erratic changes in expenditures for public works should ordinarily not be made, and repeated tampering with the mortgage structure should be avoided.

"In the long pull the construction industry is likely to function better in a financial environment with which it is familiar than under circumstances where its plans must be made in the uncertain light of unexpected benefits and threatened restraints. Controls exercised broadly on the volume of money and credit usually will be far more satisfactory than specialized and selective controls designed to affect specific market decisions.

"Especially to be avoided is any form of price fixing by either public or private means. Price itself is a major means for bringing about adjustments in demand, and the policy should be to assure rather than to impede its operation. On the private side, price fixing, whether by direct or indirect means, should be uprooted vigorously through enforcement of the anti-trust laws, with such revisions as may be necessary to make them effective in this respect.

"For the same reason, only amid the most extreme and necessitous curtailment of supply in the face of continuing high pressure of demand should government control of prices, including rents and interest rates, be considered. Even under those circumstances, measures designed to curtail demand at its source, by way of taxation and credit restriction, are more promising of results than price fixing.

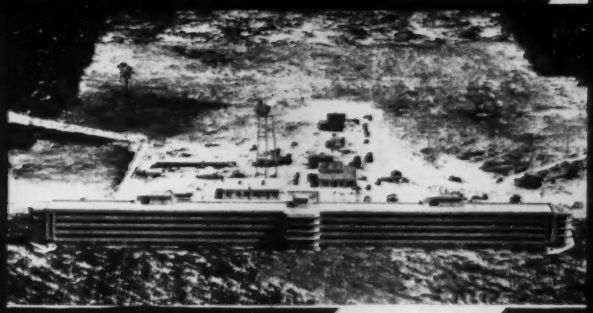
"In the absence of spectacular upsets, main reliance (to assure a flow of investment into construction) should be placed upon a freely operated price system, continuous technological advancement, adequate market information and a political environment in which it will be possible for people to save and profitable for them to invest."

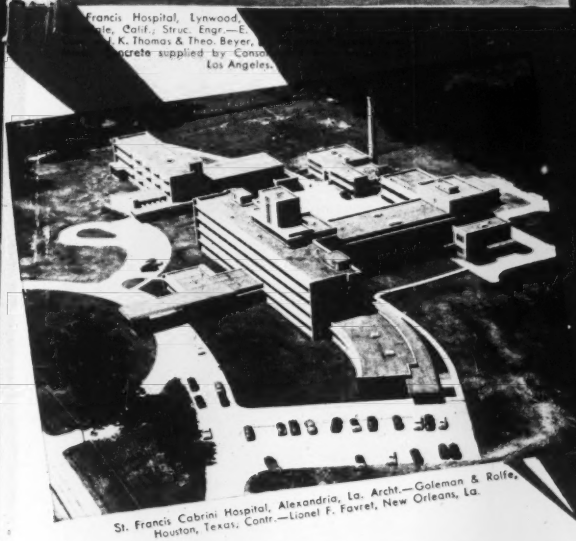
TOO LARGELY IN THE PAST the panaceas resorted to or sought have been government subsidies and expanded public works in slow times, and a reduction in public works and restrictive economic controls during periods of prosperity. None of these devices has worked because, except in periods of dire national emergency, political and social forces are all against them. For example, such types of government subsidy as controls that prohibit some types of work and permit others, direct government construction of certain types of facilities, accelerated depreciation and special tax deductions benefit some, but harm or seem unfair to others.

Trying to hold down public works during a boom is also difficult because, without streets, sewage treatment, water supply, and schools, necessary private construction will be stopped. In bad times there are just not enough public projects to take up the slack caused by a letdown in private work.

THE ASSERTION that stabilization of the construction industry is not possible by government planning and control will dismay the enthusiasts of a managed economy. The contention that artificial price fixing and market control contribute to instability will shock some wishful thinkers in private industry. And the idea that the seeds of depression lie in labor gains that are out of proportion to increased productivity will—or should—frighten some labor leaders. But dismay, shock and fright may be needed to switch efforts for construction stabilization to a more promising track.

Coming at a time when there is increasing talk of how a down trend in construction can be avoided when defense spending stops, this new look at the stabilization problem is welcome indeed.





St. Francis Cabrini Hospital, Alexandria, La. Archt.—Goleman & Rolfe, Houston, Texas. Contr.—Lionel F. Favret, New Orleans, La.

U. S. Veterans' Hospital, Dearborn, Michigan. Archt.—Plans by U. S. Government, Veterans' Administration. Contr.—F. H. McGraw Construction Company, New York City. Pozzolith Ready-Mixed Concrete supplied by F. J. Knight Co., Centerline, Mich.

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Asphalt plays leading role on

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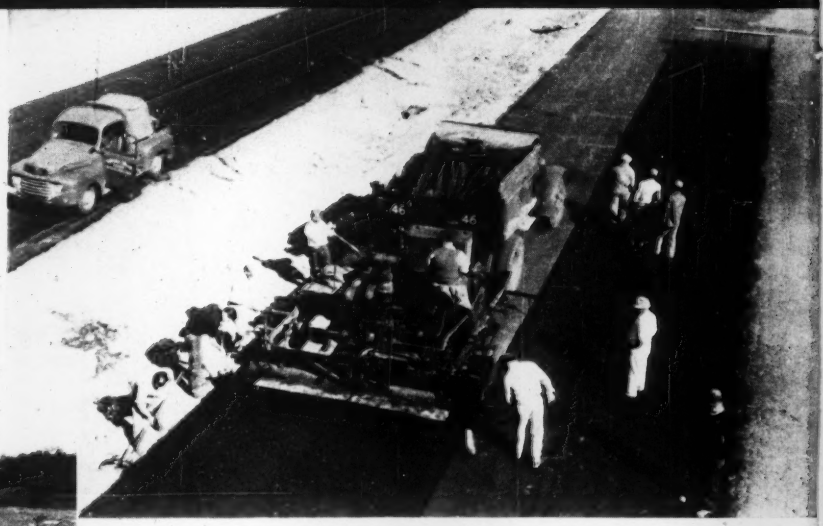

Laying hot-mix Texaco Asphaltic Concrete wearing surface over a Texaco Asphalt Macadam foundation on 3½-mile section of Boston-Fall River Expressway. Contractor Campanella and Cardi Construction Company, Hillsgrove, R. I.

How this Massachusetts superhighway project looked in April 1951 (top) and in August 1951, when it was ready for the Asphalt pavement.

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